AMSTRAD
CPC464 USER

95p

Jan/Feb 1985

The *OFFICIAL* Micro Magazine

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CP/M explained
Launch into LOGO

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News and views
Hints and tips
for CPC464 users

First issue on general sale



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SOFT-5003

Issue 3 December/January 1984/1985

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AMSTRAD CPC464 USER

Please note that this is the first issue available on general sale to the public. Back issues, (SOFT-5001 and SOFT-5002) are available (£1.00 each) : apply enclosing a large SAE to the Back Issue Dept.



Another lucky winner!
The Amsoft User Club prizewinner collects his cheque from Dickie Mould, Sales Director of Amstrad (minus deductions for the DMP1 and DDI1 he bought on the spot!).

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This superb book is designed to let every CPC464 user, at whatever level, get the most from his computer. After an introductory section on the special Basic features, the book looks in depth at the excellent sound and graphic facilities including: *● Animation ● Windows ●Character sets ● Multitasking ● 3 Voice Times ● M/C routines for Basic ● Use of Zen ● Use of O/S ● Sample programs*

Available from your nearest Amstrad CPC464 Stockist.

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WELCOME!

Existing readers please forgive this greeting to the uninitiated, but with this issue, CPC464 User 'goes public'.

Quite an achievement for a publication that was conceived only 4 months ago as an occasional newsletter. And yes, the title has expanded along with everything else, since now we're on the bookstall, we need to emphasise just who and what we are about.

If you already own a CPC464, you don't need telling that you have acquired a remarkably versatile and powerful home computer system at an unusually low price. Much of the power of the CPC464 lies hidden beneath the surface, and so CPC464 User will help you to explore some of this subtlety with the assistance of the many owners who write in with features, listings and tips.

Since AMSTRAD CPC464 User is the 'official' user magazine, we are able to cheat by referring directly to the designers and other participants in the Amstrad computer divison. This helps keep us on our toes, and ensures that all owners benefit from this rapid accumulation of knowledge and feedback.

If you have not yet decided which computer to buy, and you have picked up this issue to see what the CPC464 is all about, then we hope that you will be convinced that when you choose the CPC464, you will be buying not merely a package of hardware, but a machine with a broad groundswell of support and enthusiasm, co-ordinated through the fastest growing User Magazine in the history of personal computers!

The fact that the CPC464 has been so eagerly adopted by experienced users means that there's already lots of software and other material available although the computer has only been advertised since the end of August. CPC464 User provides a platform for advertisers and a directory section where programs may be listed at no cost, so that readers with specialised software can communicate this fact and thereby increase the overall knowledge and range of applications available.

So if you are about to make a decision to buy, then we hope CPC464 User will have made your decision all the more obvious. You will be in very good company!

Fan clubs

Followers of the weekly computer press will have noticed that Personal Computer News has developed something of a love affair with the CPC464. There are many programs and letters published on the system and its software, and so CPC464 users should be aware of this additional wealth of experience and guidance in our midst. (*Now* will they buy an ad with us?)

Clubbed to death

It's about time we saw some evidence of a nationwide network of CPC464 user groups and clubs. It seems quite likely that as many of the first customers are old hands, owners already belong to local groups for other machines. If you belong to a club with an affinity to the CPC464, send us in the details, and we'll see about opening a computer club corner.

Sizewise

CPC464 User Club members who are wondering how to fit an A4 magazine in their B5 ringbinder are asked to bear in mind that there will be a number of supplementary publications issued for their system that will be available minus binders at reduced cost to club members with folders.

The first such is the Disc System firmware appendix (SOFT158A), and if Locomotive Software is up to its usual standards of thoroughness, this may just about fill your folder to bursting point in one fell swoop.

We imagine that you will forgive this small misdemeanour in view of the rather more rapidly increasing size and scope of the 'newsletter' than originally envisaged.

Original and Best

AMSTRAD CPC464 User is as much a diary of the hardware and software design and development house as a forum for users' ideas, programs and observations. As such, it's very different to anything that's ever been attempted before in this market and we are all absolutely delighted that it's been so well received.

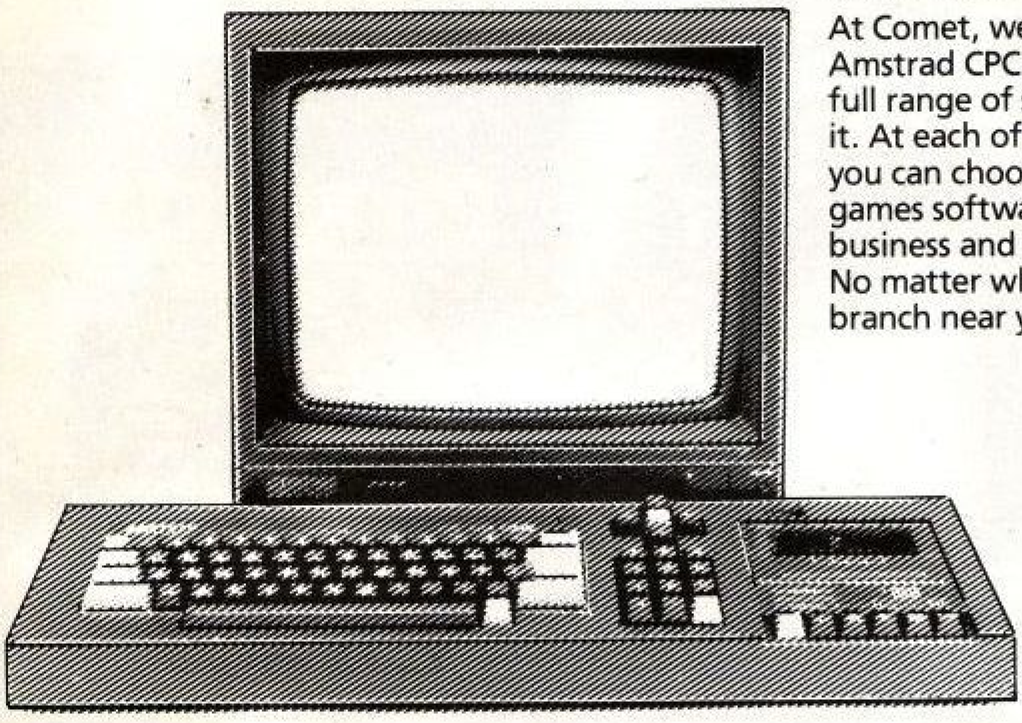
Someday all user magazines may be produced this way. We don't want to get away from the harsh reality that all this has to be paid for, so we are inviting adverts from anyone with anything to advertise.

All the profits (if there ever are any!) of CPC464 User are being ploughed back into making it the biggest, the best and the most avidly read computing publication in Europe. (Even *we* feel we have a task competing with the the likes of Byte). Amstrad has an exciting program of development that you will hear about with most authority in CPC464 User.

If we hogged all the news to ourselves, then all those good people at magazines like PCW, PC, PCT, PCN etc., who have helped make the CPC464 the success of 1984 may be a shade disenchanted, and that would not serve anyone's purpose. But we may be a bit selfish and try to keep the titbits aways from our direct competitiors!

After all, we have pushed the boat out, and we want all the passengers we can get. It's good for CPC464 User, good for users and good for advertisers. Just tell us when you think we're getting too sycophantic. We certainly don't invent the praise in the reader's letters, but maybe we can get a little too willing to publish it at times!

AMSTRAD



AMSTRAD CPC 464 HOME COMPUTER

At Comet, we not only stock the amazing Amstrad CPC 464 home computer — but also the full range of software and peripherals to extend it. At each of our branches throughout the UK you can choose from the full range of Amsoft games software, programming aids, books, business and educational software.
No matter where you live — there's a Comet branch near you.

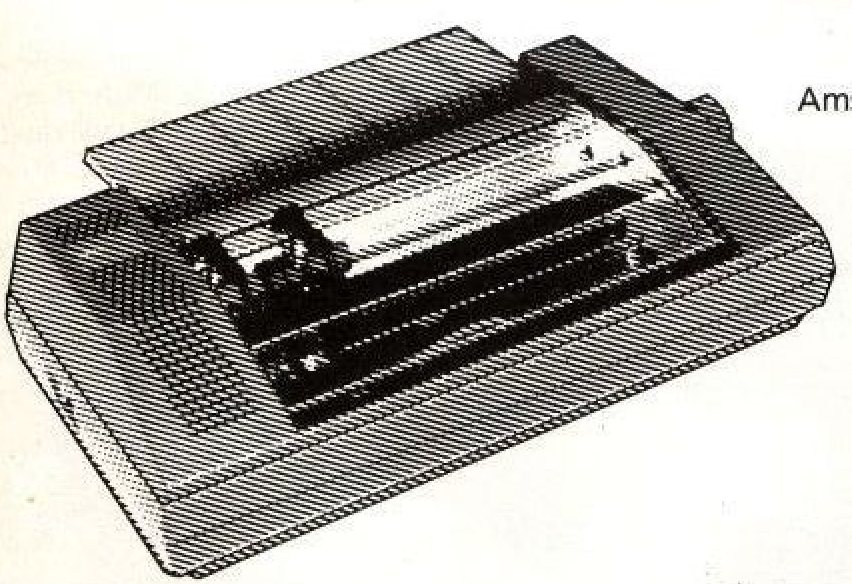
SPECIAL COMET PACKAGE

Amstrad CPC 464 with GT 64 Green screen monitor and 'Introduction to Basic' manual, together with Amstrad MP-1 modulator power supply which allows you to use your colour T.V. as a colour monitor — ideal for colour graphics and computer games.

Price if bought separately £288.80 inc. VAT

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- impact dot matrix
- unidirectional
- 50 CPS
- complete with cable

Package includes Amsoft easi word processor and one pack 500 (approx) sheets pan fold paper.

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Comet stock a full range of:— Amsoft games software, Amsoft programming aids, Amsoft books, Amsoft business and educational software, Amstrad matched joysticks.

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For the address of your nearest Comet branch see your local telephone Directory or ring Teledata 24-hour service on 01-200 0200.

NEWS

Mark James reports on the state of the computer retailing art around the country. Armed with his trusty Instamatic and a thirst for the real ale of the Fens, his odyssey starts with Cambridge....

In each issue I shall be surveying Amstrad's dealers in randomly selected towns throughout the UK and in future issues, with the help of our overseas companies, we hope to extend this to foreign cities.

Now that the M25 meets the M11, Cambridge is within easy access for me and most other London dwellers. Still the torrential downpour did not make the journey enjoyable nor welcome the prospect of a soggy walk around the stores.

In the very centre of Cambridge a multi-storey car park allowed me to avoid the worst of nature's elements and walk around the modern Lion Yard Shopping Centre. Apart from keeping the customer sheltered and allowing a concentration of goods within a well defined area, shopping centres for me are not an attractive proposition. As you stand surrounded by the highly lit chrome and glass shop fronts, you could be in any town - and nothing within reflects the character of the city beyond - well almost nothing. If you've ever visited Cambridge you would have noticed that bicycles are everywhere and Lion Yard Shopping Centre is no exception.

Dixons lies to one end of the Shopping Centre, their well polished presentation is immediately recognisable. It is not only this that is dictated by Head Office but also their approach to reporters. Head Office policy states that reporters should not be allowed to photograph the store or ask sales assistants for comment without prior approval from the Marketing Director. I fully respect why a public company should wish to control the way in which it is reported in the press but I doubted whether my camera could reveal more than the average shopper could on a Saturday browse.

Anyway I accepted their decision gracefully and walked over to the computer section. There was room to sample a wide range of computers and the range of software had expanded considerably since I last visited a Dixons' store.



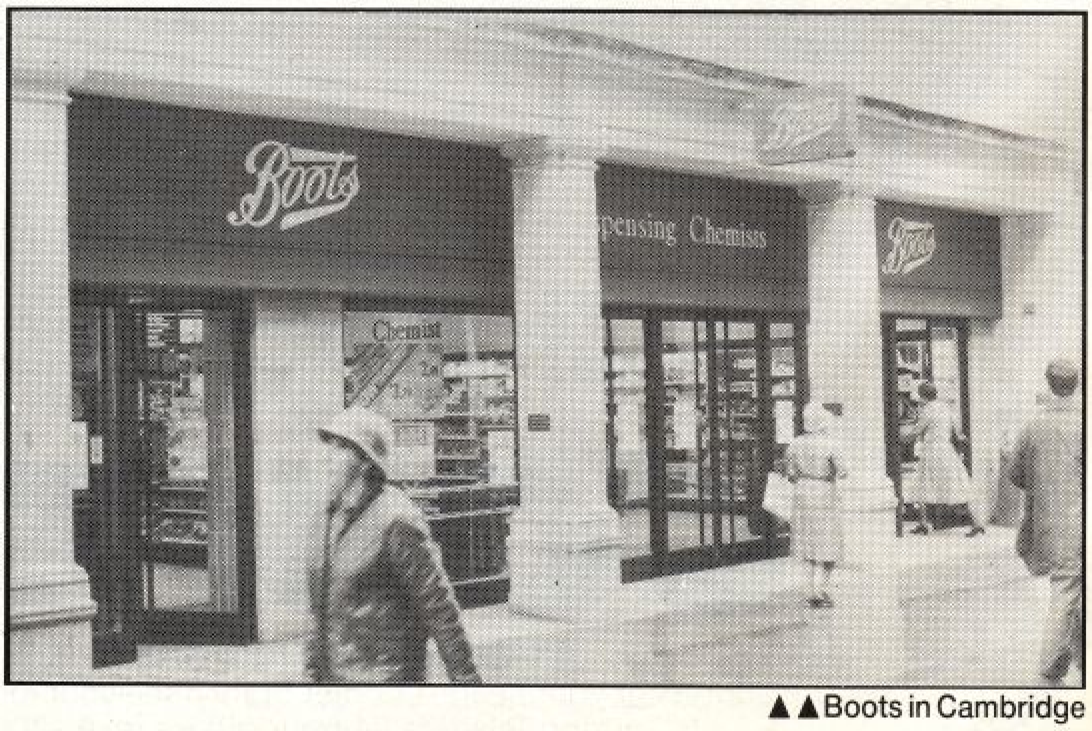
Dixons' Cambridge store ▲▲

By the time I had left Lion Yard the rain had stopped. One of the exits led me to Petty Cury. Both Boots and Rumbelows are situated in this street, believed to be named after the mediaeval bakers and take away food shops that were sited there. ('Petitecurye' is Norman French for Little Cookshops).

(The scholarly atmosphere obviously got to him: ed)

Boots retains the facade of an ancient building but the interior is far from old and reflects the way in which Boots is moving into the future. Modern well presented displays feature a wide range of goods from toys to toasters and cotton wool to computers.

The computer department is sited on the first floor and there Mr. Dhese showed me the full range. He explained that because the city is full of students



▲▲Boots in Cambridge

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Available for Commodore 64 and Spectrum 48K

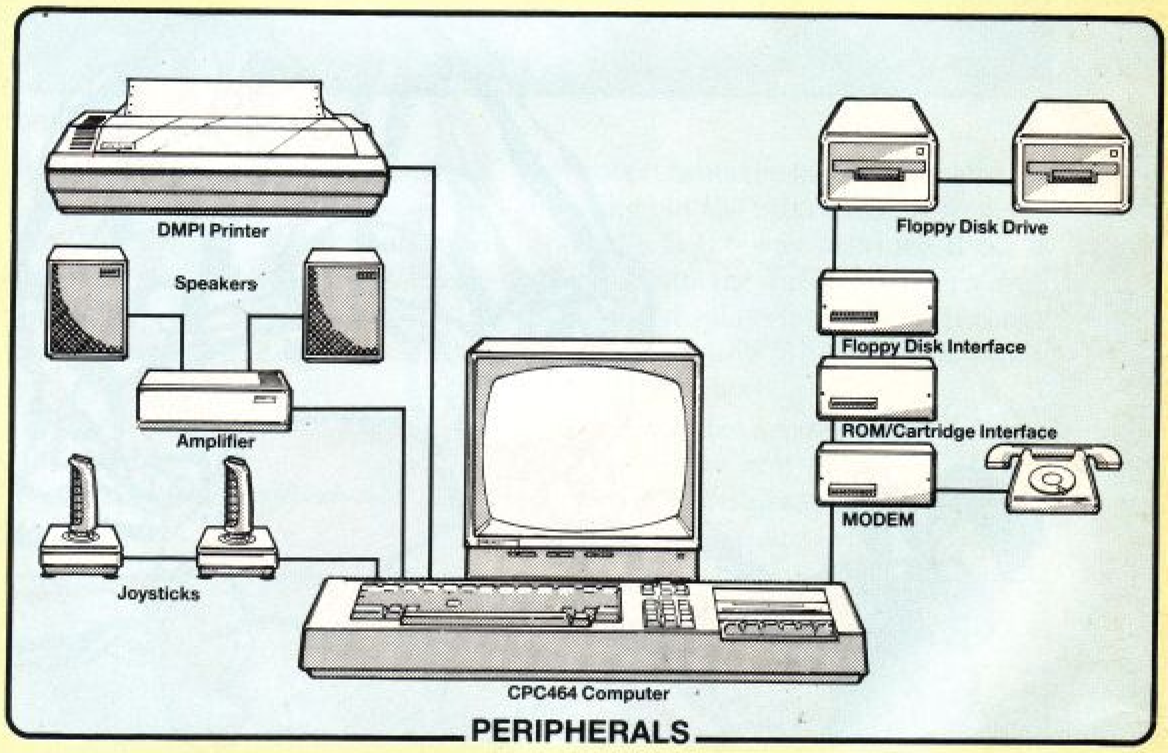
After everything that's been said in praise of Amstrad's CPC464, is there anything to add?

Plenty.

The CPC464 is an enthusiast's dream come true.

Few applications are beyond its capabilities, with its sophisticated features, complete expansion bus connector for sideways ROMs, serial interfaces, disk drives and modems.

No wonder the press is in raptures over it.



The CPC464 system.

It comes complete and ready-to-go. Here's what you get for that incredibly low price.

64K of RAM (42K available), 32K of ROM, colour monitor or green screen VDU, typewriter style keyboard, integral cassette data recorder and a very fast extended BASIC.

The CPC464 offers you high resolution graphics, 80 column text display, up to 8 text windows plus a graphics window and a palette of 27 colours.

Not to mention a 3-voice, 7-octave stereo output you can feed through a hi-fi amplifier and speakers.

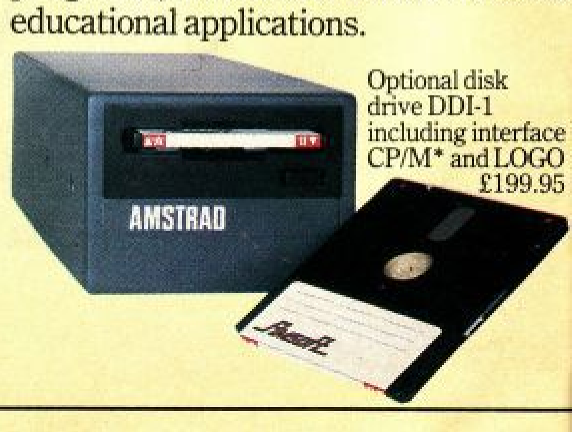
Now we think you'll agree, that's some system.



CPC464 green screen VDU (GT64)

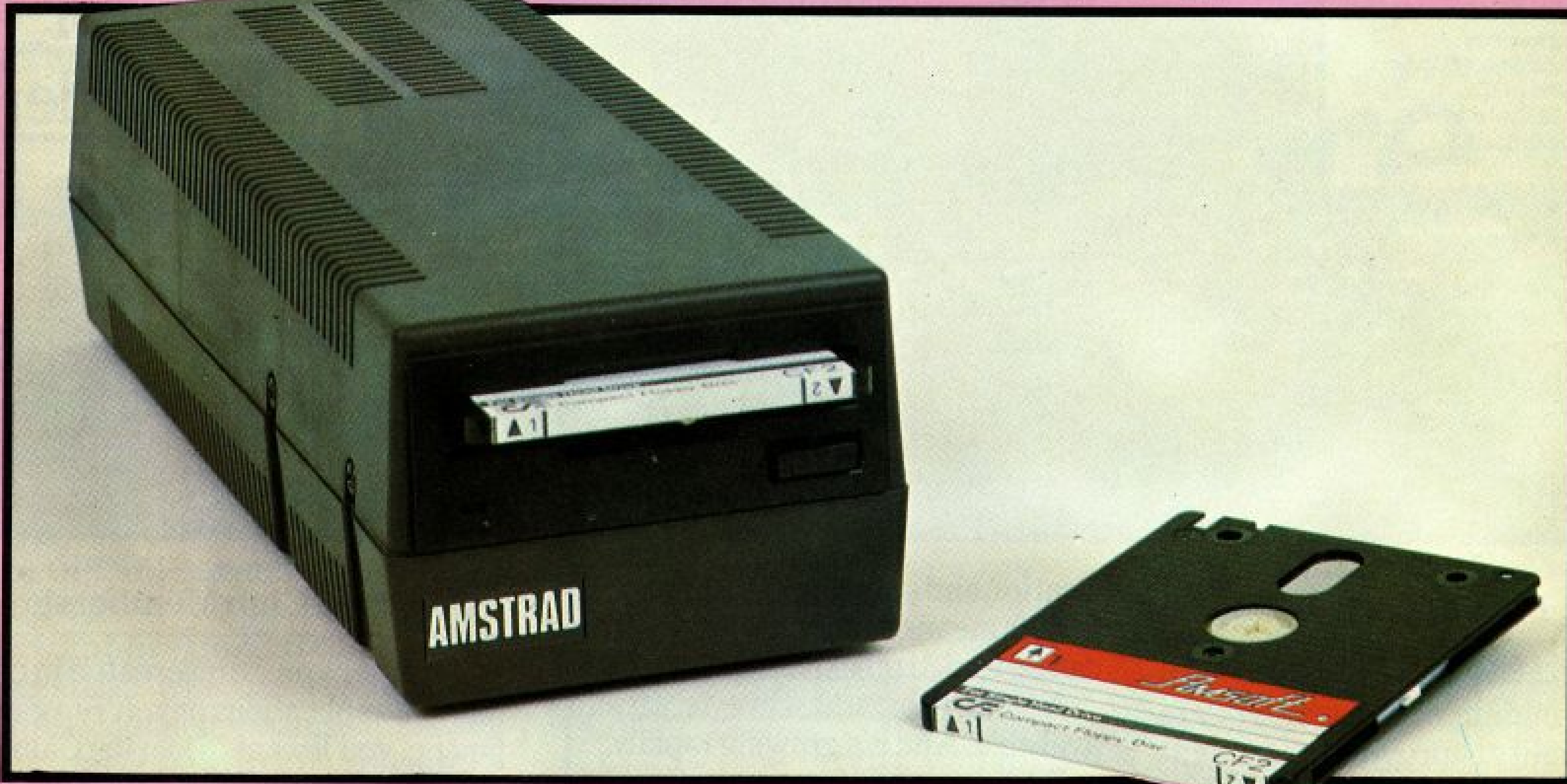
Low cost disk drive.

An inexpensive floppy disk system is available which includes CP/M* (giving you the option to access 3000 proven programs) and LOGO with its famous educational applications.



Optional disk drive DDI-1 including interface CP/M* and LOGO £199.95

Go for a spin with the CPC464.
£199 including VAT
(complete with interface)



...... and take Dr LOGO and CP/M along for the ride.

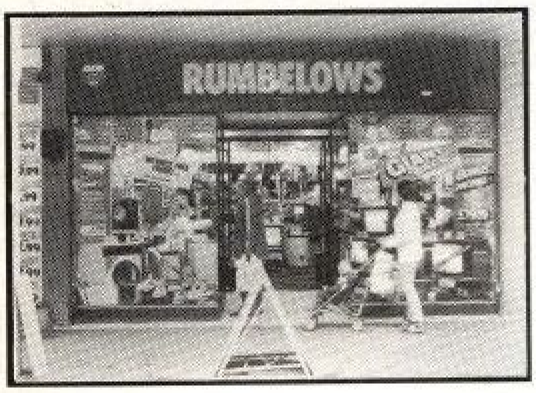
A real 3" disc drive, supported by a very comprehensive dual operating system, utilities and the famous educational development language Dr LOGO on the flip side.

AMSTRAD CPC464

his customers tend to go for the cheaper computers like the Sinclair Spectrum though the sheer value for money offered by the Amstrad had dented Spectrum sales.

Mr Dhese was very proud of his well stocked range of books and software -and quite rightly so. He was very keen to see the Amstrad Disc Drive and this proved to be the first of many such comments made to me that day.

Serves you right?



Two hundred yards along the same road was Rumbelows. A small shop by Rumbelows' standards but consistent with the company's new image and certainly offering a very warm and friendly atmosphere. The manager told me that the shop was right in the middle of changing software distributors. Prism had collected all stock and he was eagerly awaiting software from Thorn EMI Distribution.



Being a small shop, space was limited but that didn't prevent the display of a healthy range of hardware. The manager predicted another good Christmas for computers.

In Market Street I stopped for a coffee, time to reflect on what I'd seen and most importantly to reload my camera. What is immediately obvious to visitors is that the people of Cambridge are friendly and extremely helpful - I suppose that's part of life's duties living in a city that is literally crawling with tourists.

Well must press on - I've two independents to visit and the giant of today's stores - Comet.



Cambridge Computers have two shops in Emmanuel Street - one majoring on business computers like Apple, Apricot and Macintosh and the other selling computers in my price bracket. Their home computer store is packed with staff and machines.

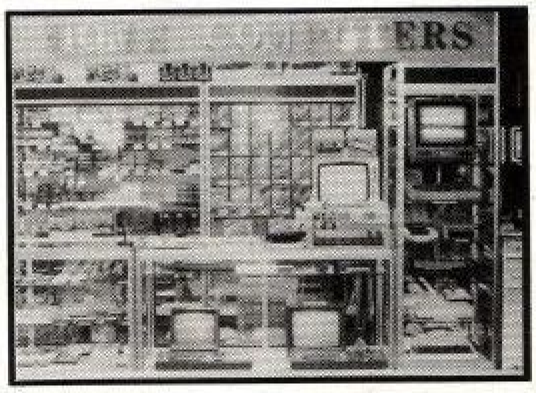
The manager Billy Moore agreed that customers come to them seeking technical information and it was on this point that he started to interrogate me -I told him that his efforts were futile and that Amsoft (Amstrad's technical division) could help him. He thought that the disc drive would sell well particularly to his customers who were eagerly awaiting its arrival. Much of the staff's information on other computers had been gleaned from User Magazines and they naturally welcomed our own publication for that very reason.

The manager and one of his sales assistants started to get technical with me again and I realised I was well out of my depth and bid them farewell.



Typically I found Comet on a large stretch of dual carriageway leading out of Cambridge towards Newmarket. This is a relatively new store having been opened in April. Previously Comet were just on the edge of the town but were limited by space. Some of the public have a narrow view of Comet as being just a discount store that hands boxes over the counter with little knowledge of the contents therein and much of this jaundiced view is fuelled by the less discerning of us journalists. This impression is simply not valid in the modern day Comet store which always attempts to keep staff well informed and customers happy.

Mr. John Pollard, the resident expert, admitted reading a lot to keep himself abreast of developments and praised Amstrad for doing what they said they would do. Comet stock what is probably the largest range of software with a current listing of 31 titles and they are all well presented.



On travelling south down the M11 I turned off at Junction 10 towards the small village of Sawston. GCC Cambridge stands in the centre of Sawstons quaint High Street and upon entering, the customer is confronted by a range of personal to business computers and a well stocked wall of leaflets. I found out quite quickly that the shop was just a front for a business which designs its own expansion boards and develops software for sales both here and overseas. The directors of this company tell me that they are looking forward to providing similar facilities for the Amstrad computer and for this reason they are especially keen to get their hands on the disc drive.



My thanks to all the staff in the shops I visited and my apologies to those stores that I missed through lack of time or sheer bad map reading.

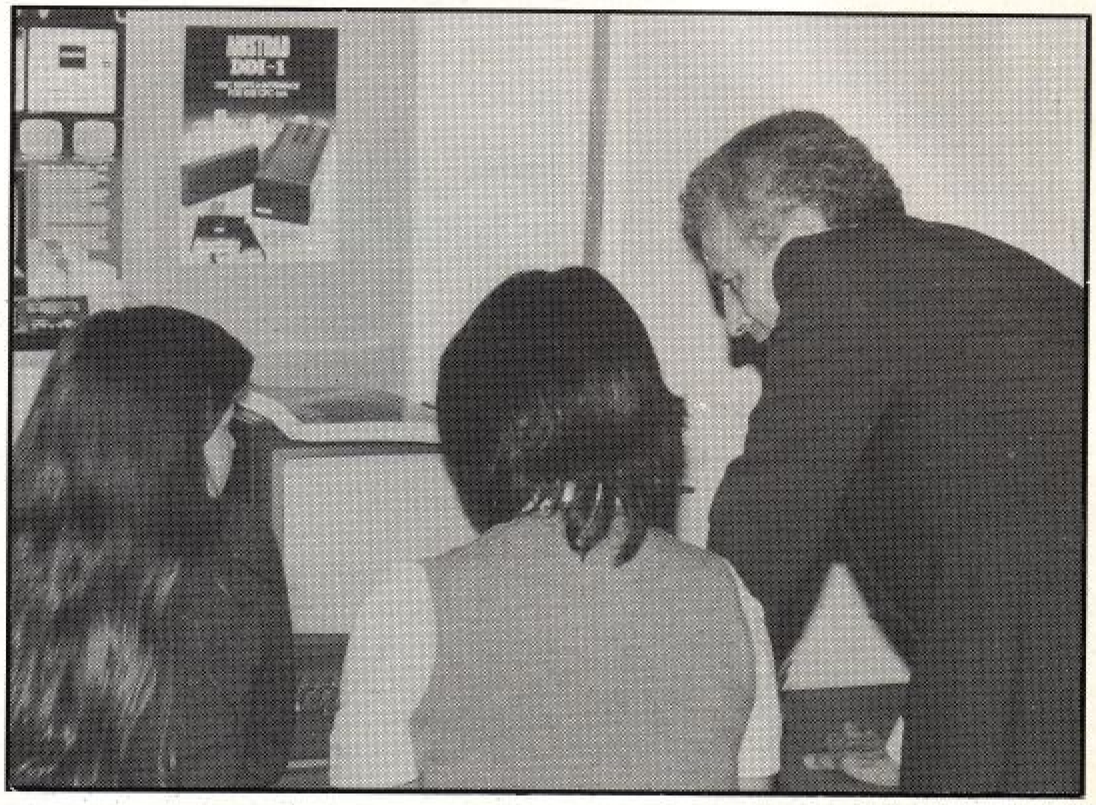
■ CPC464 USER

The Minister gets an Education

Sir Keith Joseph, Minister of state for Education and Science toured Thorpe Bay High School on November 12th., and was there regaled with the sight of the computer class working avidly on the CPC464s delivered from one of the first batches to arrive in the UK.

Regular readers may recall we chronicled this event in our first issue.

Also in attendance was Southend's MP, Teddy Taylor, who promised to represent the case of CPC464 with Sir Keith since AMSTRAD's major UK factories are sited in his constituency. With a little encouragement from the DES along the lines already offered to competitors, it might just be enough to cause Amstrad to think about assembling computers in the UK.



OUR YOUNGEST USER?

In our second issue we showed what was probably our oldest user. In this issue we look at the other end of the age spectrum to possibly our youngest user.

Mr. P. Andrews of Doncaster wrote in about his 2 ½ year old daughter Rebecca. Dad says that Rebecca and 'Arnold' (CPC464) have struck up a tremendous relationship "My daughter can load and run the datacorder and use the joystick to move her favourite characters around the screen."



Dad has only one problem - it's not unusual to find Rebecca playing on the Amstrad computer at two in the morning and he finds it difficult to be angry with her because he feels she should be given every encouragement at such a young age.

Well, Mr. Andrews I don't disagree but some of us parents need our sleep!

VIVA EL CPC464!

We were pleasantly surprised to discover such an enthusiastic and aggressive young company in the hitherto untrodden plains of Spain. *[This sounds like more old bull from Mr James?:ed]*

Indescomp initially came to our attention through their talents in software writing - they wrote Roland in the Caves and Roland on the Ropes. But they quickly convinced us that with over 1000 dealers they could handle the entire distribution for Spain.

Mr. Jose Luis Dominguez commented "Spain is probably the European country with the greatest potential to expand its home computer base and we have no doubt that within a few months the CPC464 will be the most popular brand" - there's confidence for you!

Their target for next year is in excess of 30,000 units and they have already embarked on an advertising campaign directed towards home, education and business use. Olé!



software that's hard to beat...

AMSTRAD CPC 464

FROM THE COMPANY THAT PRODUCED AMSWORD/TASWORD 464 ("THERE IS NO BETTER JUSTIFICATION FOR BUYING A 464 THAN THIS PROGRAM" – POPULAR COMPUTING WEEKLY, 1ST NOVEMBER 1984) TWO ADDITIONAL PROGRAMS FOR YOUR CPC 464 AND DOT-MATRIX PRINTER.

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A must for dot-matrix printer owners! Print your program output and listings in a choice of five impressive print styles. TASPRINT 464 utilises the graphics capabilities of dot-matrix printers to form, with a double pass of the printhead, output in a range of five fonts varying from the futuristic DATA-RUN to the hand-writing style of PALACE SCRIPT. TASPRINT 464 drives the dot-matrix printers listed below and can be used to print AMSWORD/TASWORD 464 text files. TASPRINT 464 gives your output originality and style.

FIVE IMPRESSIVE PRINT STYLES FOR YOUR USE

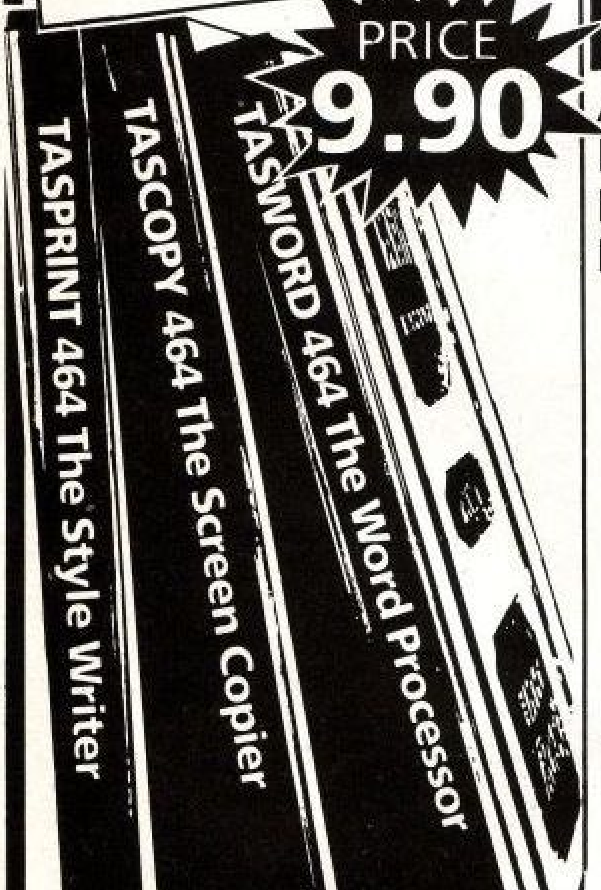
COMPACTA – bold and heavy, good for emphasis
DATA-RUN → A FUTURISTIC SCRIPT
LECTURA – clean and pleasing to read
MEDIAN – a serious business-like script
Palace Script – a distinctive flowing font

PRICE 9.90

TASCOPY 464 The Screen Copier

A suite of fast machine code screen copy software for the CPC 464. Print high-resolution screen copies in black and white and also large 'shaded' copies with different dot densities for the various screen colours. TASCOPY 464 drives the dot-matrix printers in the list below.

PRICE 10.90



TASPRINT 464 and TASCOPY 464 drive the following dot-matrix printers:

- Amstrad DMP 1
- Epson FX-80
- Epson RX-80
- Epson MX-80 Type III
- Mannesmann Tally MT-80
- Star DMP 501/515
- Brother HR5

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ITEM	PRICE
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TOTAL	£ ____

Send me the free Tasman Brochure describing your products for the Amstrad CPC 464 tick here: ☐

Strewth, it's a CPC464 down under

No, this is not a review for an underwater version but news of the way the computer is taking off in Australia.

AWA-Thorn Consumer Products Ltd (sole agents for Australia) reported tremendous interest for the CPC464 even before they began their extensive advertising campaign. In their recognition of the need for potential consumers to sample the delights of the computer they also decided to take part in a number of regional exhibitions. Here is an extract from a report from their Adelaide office to Head Office in Rydalmere:

"The initial plan was to have the stand manned by only one person, Craig Cox, a young clerk in our employ who has shown great interest and aptitude in computers and computer technology. However, after the first morning of the Exhibition, Craig reported to me that he was unable to handle the volume of enquiries on his own and requested assistance and so I then assigned Sales Representative, John Parish to jointly man the stand with Craig for the duration.

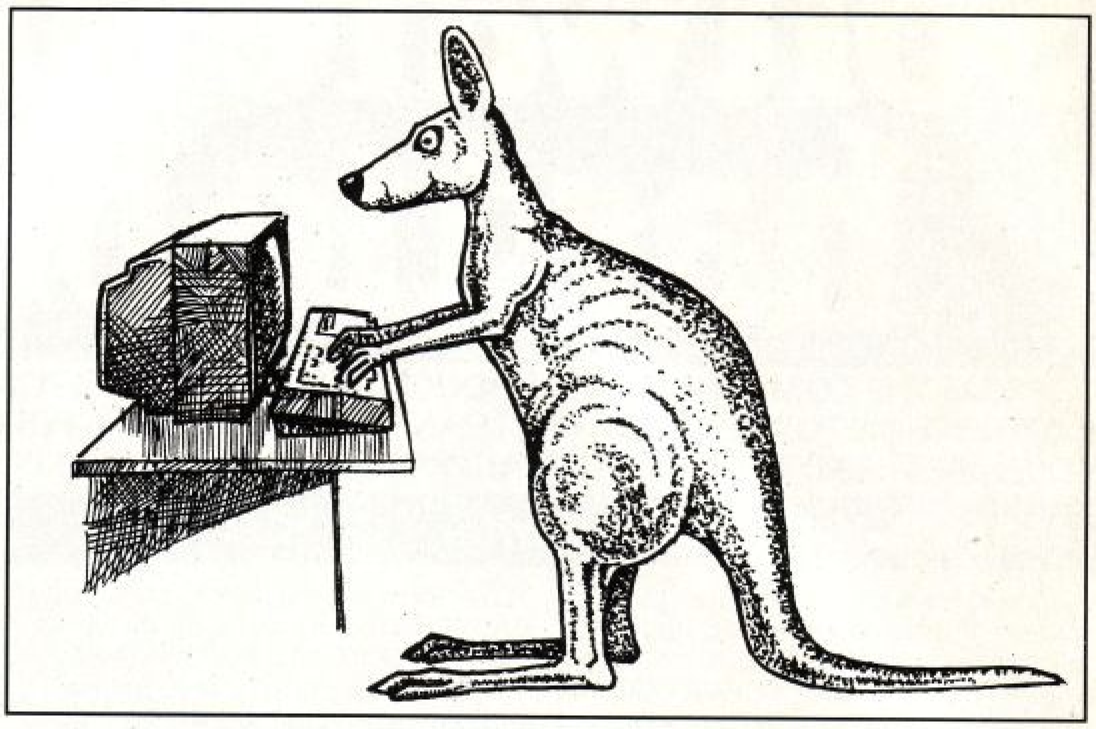
Strategy for the stand called for a bright colourful display with two Amstrad Computer Packages. Package one included the high resolution green screen VDU, while Package two included the colour VDU.

No brochures were handed out to interested people from the stand, but those who showed sufficient interest were invited to fill out a "Request for Literature" form and these forms were then used to supply literature through the post and to provide our retailers with computer sales prospects.

Over the 3 day duration of the Exhibition, hundreds of people took the time to fill out a form, while others received verbal information and took the opportunity to actually operate the computers.

Comments received about the quality of the equipment and value for money aspects were all very complimentary, although I must report that at least two prospective customers became quite annoyed when they found they would have to wait at least another three weeks before the computers were released on the market and they could purchase one."

More news from the Atipodes in the next issue.



LAUNCH IN SINGAPORE

Our international correspondent (resident in Hong Kong) visited the recent launch of the CPC464 at the Personal Computer 84 Exhibition held in Singapore - this is his report:

Although Singapore has a population of 2.5 million, it does serve as the centre of trade for the surrounding area - Malaysia, Brunei and Indonesia.

This particular venue was carefully selected as being the most suitable from many other shows currently being staged throughout the region. And judging by the way that our distributor's stand was jammed from the opening ceremony to closing time at the end of the 5 days, our decision was totally justified. This was all the more surprising as at the last minute, agents from some of our competitors, namely Oric and Spectrum had pulled out.

From the market research that we had previously carried out in the region, we knew that Singapore would be as difficult a market as Hong Kong. Both Governments, whilst officially banning "fake apples", and copies of other popular machines, appear helpless to control the situation and independent sources put the percentage of fake units as high as 80%.

Given these facts, it was very encouraging to see a large crowd forming around our stand whilst the minister in charge of Science and Technology, gave the opening address.

The superior sound and graphics quality of the CPC464 was further advanced by very clever demonstration techniques especially written by our local distributor. He is a well known author of many of the special educational programs that have been adopted by local companies engaged in selling visual computer aids.

Visitors were sceptical of our claim that the CPC464 was the ideal home computer for them. Quite a few of them have previously bought other makes and were clearly disappointed with either the unit itself or the after sales service or lack of software support. It didn't take long to impress most of them that although the CPC464 was a newcomer having been launched in the UK in June it was an exceptional machine with over 70 software titles under its belt.

By the afternoon of the first day it was proving impossible to talk to all of the potential customers that were crowding the stand. With the new DDI-1 Disc Drive and a DMP-1 printer we hastily provided personal invitations allowing prospective purchasers to travel back to our distributor's main showrooms in the centre of the city by special arrangements with a local car hire company. All they had to do was to give the driver the invitation with their name printed on it and show their identity card.

■ CPC464 USER

ANIROG

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ADVANCED PILOT TRAINER

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Reviews!

This time we include a star rating system. It's difficult to be all things to all people - personal preferences are very difficult to account for - the following is offered on the basis that something is better than nothing.

Manic Miner

The 'pick' of the platform games for the Spectrum is not available in the Amsoft range. This is an adaptation of the all time classic that set the trend for so many others.

You've probably heard it all before and the task which our hero Miner Willy is faced with, is none the less just as formidable. It gets easier with time and practice though, I promise...

There are 20 chambers in all for Miner Willy to explore and a never ending number of magic keys to collect. If you manage to collect 5 keys without confronting any of the resident 'nasties' then you are doing very well!

Whilst fighting your way through the monsters, don't be surprised if you are suddenly taken unawares and whisked off to an unexpected destination since there are many invisible staircases, escalators and even conveyors!

This game is certainly full of surprises and just when you think that you are progressing quite well, an escalator whisks you off in the direction of an untimely death. Just about every peril short of being stoned to death by pickets.

You have 3 lives in all, which hardly seems enough when you consider all the hazards involved in just playing within one chamber. However, the challenge to beat the awaiting horrors more than makes up for this.

Definitely, a game to look out for in the shops and it will keep you amused (and frustrated...) for hours.

AUTHOR:	AMSOFT/SOFTWARE PROJECTS
FORMAT:	Cassette
PRICE:	£8.95
GRAPHICS:	***
PLAYABILITY:	****
ADDICTIVENESS:	****
OVERALL:	****



Quack A Jack

As Red Jack the notorious duck Pirate King, (the what!!??) the most stylish waterfowl in Fandonia, you find yourself trapped in the Palace dungeons having failed to raid the Palace Treasury.

Your mission is to survive, collect wealth and ....scramble eggs! Survive being the operative word.

All is revealed as you battle your way through the 16 dungeon levels, each infested with its own particular variety of weird and wonderful creatures. Particularly nasty are the carnivorous prawns and the vampire rabbits, so watch out for those.

To succeed in your task you must jump onto the scattered Terraductile eggs avoiding the chasers and their cooking pots or you could end up on the dinner menu! If you fail to scramble enough eggs in the allotted time, the Terraductile will come and get you anyway - so you just can't win....



Fortunately for Red Jack he has a few tricks up his sleeve, and although the flagstones might crumble beneath his feet at will, he can walk through walls and even make the dungeon floor move beneath his feet!

I found this a most absorbing and addictive game once you have got the hang of moving the flagstones beneath Red Jack, and at first this will probably be only in the nick of time! However, with a little practice it is possible to progress onto higher levels.

There are 9 levels of playing difficulty in which there are an ever increasing number of eggs to scramble. It appears to be almost impossible to scramble all 9 eggs on level 17 so leave this level until you are quite adept at the game unless you really are masochistic...

It is one of the few games with a demonstration mode which in this case certainly lets you see what you are letting yourself in for... I certainly recommend it for lasting appeal and playability.

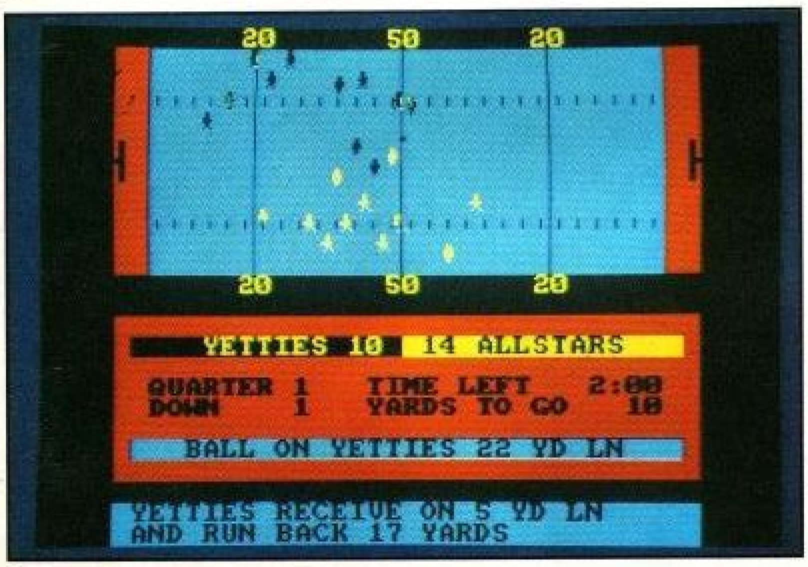
AUTHOR:	AMSOFT/PAUL SHIRLEY
FORMAT:	Cassette
PRICE:	£8.95
GRAPHICS:	****
PLAYABILITY:	*****
ADDICTIVENESS:	****
OVERALL:	****

American Football

If you have watched American Football on TV and wondered what the rules are, and that terminology.... then this is the game for you.

The software comes complete with a very comprehensive booklet which starts by explaining the rules and language. Did you know that a full team consists of 49 players? Only 11 on the field at a time I hasten to add! You will learn the meaning of blitz, clipping, chain crew, direct snap, hashmark and many other terms.

Those of you like me who can't stop to read the rules before attempting to play the game, will have found the tape and discovered that on Side 1, the program is recorded at 2000 baud, the faster loading speed. This is useful since the program is quite long. Don't worry if your computer raises an error loading from this side, just turn the tape over, rewind and load from Side 2 which is recorded at the slower 1000 baud rate. You will however, miss the excellent title page available only when you load from Side 1. After loading you will be asked to choose either one player (against the computer) or a two player game and then to name both teams. A coin is then tossed graphically on the screen to decide who kicks off.



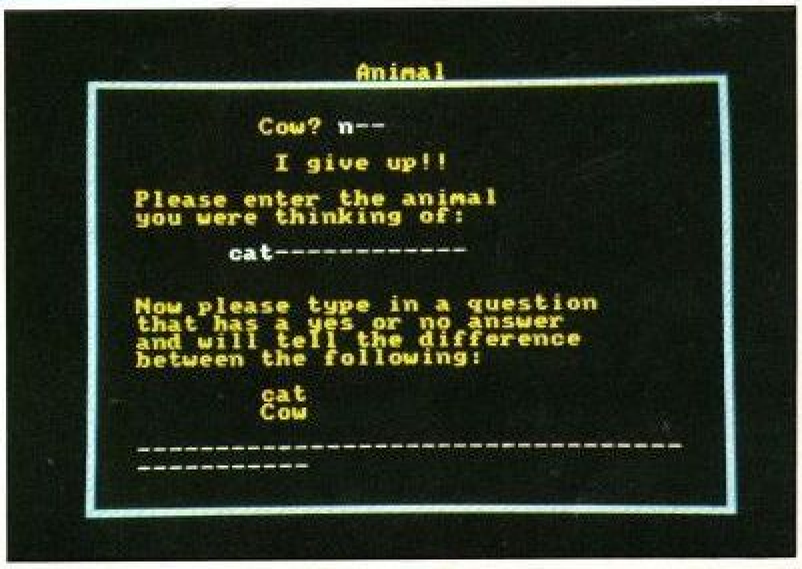
Upon commencement of play the pitch is shown in the top 2/3rds of the screen. Beneath this is a scoreboard, information section and prompt area. At this point I advise calling the 'help' screen which lists the two letter codes needed to instruct your team before the start of each 'down'. Enter your strategy and play commences...

Twenty-two miniature American footballers and the ball move about the screen in an amazingly realistic fashion, play usually stops after a short time and your instructions for the next 'down' must be entered. If your team is defending (not in possession of the ball) you will be required to enter defensive plays. The game is played in 'real time' i.e. 60 minutes of play divided into 4 quarters. As in a live game the total match time can be as much as 4 hours as the clock only runs when the ball is in play. So be prepared to make an evening of it! At anytime you can display the statistics of the game which tells you just about everything short of the inside leg measurements of the players...

To sum up, this software has been very carefully planned and written, the authors acknowledge assistance and advice from many experts in the field of American Football, plus a few more dubious credits that leave you wondering just what goes on up at APS......

The game follows the rules very closely and the graphics although unusual are fascinating. Definitely one of the better games available for the CPC464. I shall now watch the next 'Superbowl' and understand what's going on.

AUTHOR:	**AMSOFT/ARGUS PRESS SOFTWARE**
FORMAT:	**Cassette**
PRICE:	**£9.95**
GRAPHICS:	********
PLAYABILITY:	*******
ADDICTIVENESS:	*******
OVERALL:	********



Animal-Vegetable-Mineral

This program is ideal to keep children engrossed with the computer for long periods and at the same time be teaching them about all the animals vegetables and minerals that they can think of, The program asks very elementary questions about the animals, vegetables and minerals that , the child was thinking of. For instance, if he was thinking of a cow, the computer might ask 'Has it got two legs?' to which one would answer 'no'.

After a few more questions on the same sort of basis the computer will have either guessed the animal (etc.) or will have given up, asking the child to type in what the animal was, along with a small question to distinguish between animals in its vocabulary. Pretty good as educational programs for the young go.

AUTHOR: ..	**AMSOFT/Bourne Educational Software**
FORMAT:	**Cassette**
PRICE:	**£8.95**
GRAPHICS:	******
PLAYABILITY:	**N/A**
ADDICTIVENESS:	**N/A**
OVERALL:	********

Admiral Graf Spee

Altogether a dull game unless your bag happens to include naval manoeuvres and wargames. Uninspiring graphics and slow reactions to keys depressed. This could be a good game, but, from the looks of it, it is in BASIC which makes it rather slow.

The game involves your ship, the Graf Spee going in search of enemy ships and shooting them down. The reactions, as said before, are slow (but then again, so are the controls on your average WWII battleship) and therefore you may be pressing the right key many times but without any results - these come along later when least expected. To find your enemy you have to guide your 'blip' of a ship onto flashing dots which seem to move equally as randomly as you do.

If all this sounds like a watery version of the classic 'Star Trek' game that first appeared on CP/M S100 machines back in the days when you could still get a copy of 'Byte' through an average letterbox, then you're right. For 'Klingons' read 'Royal Navy'.

Once you have the luck to see the enemy, you press SEARCH and the screen shows a representation of the sea. You have torpedos and guns with which to shoot your enemy with. The game ends very abruptly, you may become promoted to Admiral, or advised to seek refuge in South America before the Führer gets to you.

I wonder how all this goes down with our Teutonic Brothers...?

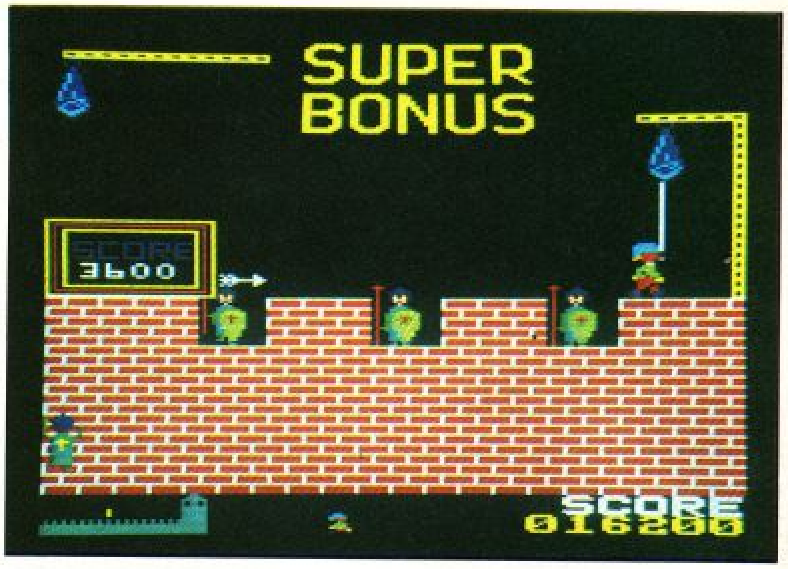
AUTHOR:	AMSOFT/Temptation
FORMAT:	Cassette
PRICE:	£8.95
GRAPHICS:	***
PLAYABILITY:	***
ADDICTIVENESS:	**
OVERALL:	***



Hunchback

No, not a description of somebody who spends too long at the keyboard, but a game in which the hero Quasimodo, must run the gauntlet of the castle walls to reach his true love Esmerelda. Quasimodo, was of course for those that don't know, the Hunchback of Notre Dame. Our apologies to Victor Hugo.

Building regulations were not so hot in those days and the castle walls contain large gaps which have to be negotiated, either by leaping or swinging across. Just to make Quasimodo's quest even more difficult the resident guards are out to trip him up with their arrows and fireballs. It must have been tough being disabled in Notre Dame!



If our hero completes five screens there is a bonus to be earned. That's if the guard climbing up the outer wall doesn't catch him first.

This is an addictive game in which the most critical skill is timing, however once this has been conquered it is relatively easy to obtain a high score. Look out especially for the swinging rope feature as this can take some time to master.

Although the graphics and sound are of a good standard, its a shame that that there isn't a keyboard playing option - because not everyone has a joystick. Finally, and most importantly, Esmerelda makes no appearance at all. It's enough to give Quasimodo the hump!

AUTHOR:	AMSOFT/OCEAN SOFTWARE
FORMAT:	Cassette
PRICE:	£8.95
GRAPHICS:	****
PLAYABILITY:	****
ADDICTIVENESS:	****
OVERALL:	****

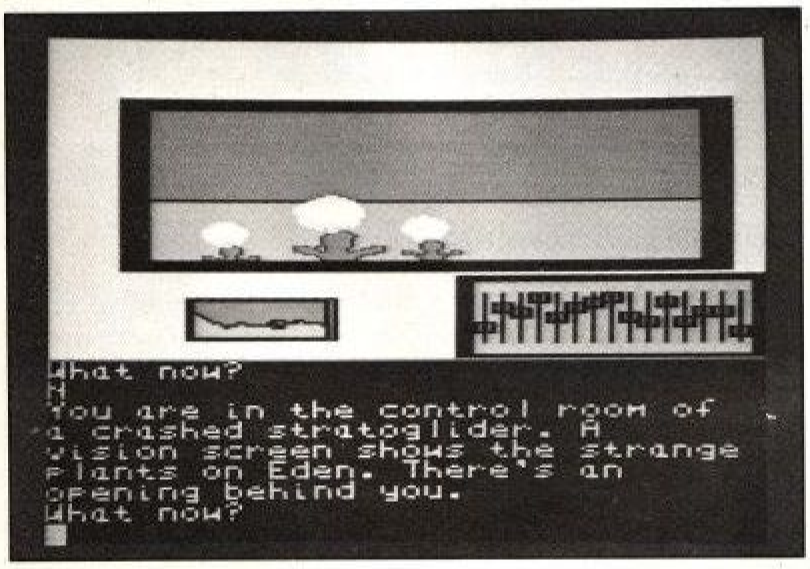


Return to Eden

This was the very first graphical adventure that I played on the Amstrad. Being a Level 9 job, I thought I might be stuck with text. But no! There were very respectable graphics drawn with speed at every location I came across! I enjoyed this adventure much more so than The Hobbit (or similar) because it was much more realistic. There were no interactive characters (which I personally find a pain in the neck) and the atmosphere was well built up. Even without the graphics it would be another first class Level 9 adventure.

I must tell you about the plot. It is the sequel to 'Snowball' (although playing Snowball is not necessary). It involves making your way through the planet Eden's jungle and then onto the Robot City and past their defences. The responses are also well thought-out, no such cop-outs as 'Huh?' or 'I'm afraid I can't do that at present' or 'I don't understand that'. It has such replies as 'I nearly understood', 'Can that be rephrased?' or 'That doesn't make any sense to me' which give you a reasonable clue as to which words it knows and doesn't know. Pity there wasn't any sound, perhaps there was no room left for it.

AUTHOR:	AMSOFT/LEVEL 9
FORMAT:	Cassette
PRICE:	£8.95
GRAPHICS:	****
PLAYABILITY:	****
ADDICTIVENESS:	*****
OVERALL:	*****



Lords of Time

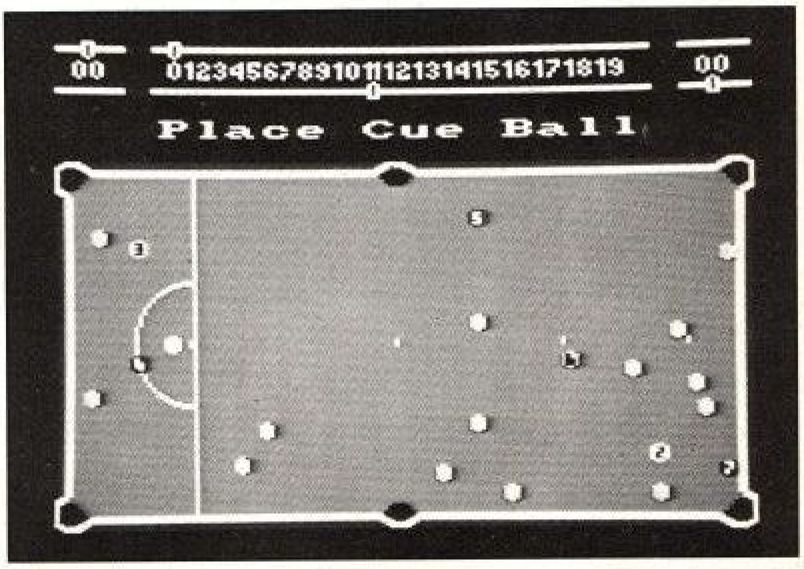
There are nine valuable treasures dotted around time in the form of hourglasses - these must be used to defeat the nine evil Lords of Time. Again, like all the Level 9's I have come across, the descriptions are perfect to give you a clear picture, accounting for the absence of graphics. The problems set, begin at the easiest and work up to very hard, yet each minute you're thinking of how to do this, or work out that, it's still enticing you with such goodies as how to get into a red Porsche, how to get the coin from the compost heap and how to find a tooth for the poor tooth fairy. All these and much more make the adventure very enjoyable to play, and, as I said before, 'enticing' you further with humour.

AUTHOR:	AMSOFT/LEVEL 9
FORMAT:	Cassette
PRICE:	£9.95
GRAPHICS:	N/A
PLAYABILITY:	***
ADDICTIVENESS:	****
OVERALL:	****

Snooker

A definite 'must' for all the budding Snooker Champions of the CPC464 world. Although you may expect to see many more versions of this popular game to appear within the next few months, the rivals will have to go a long way to produce a better version than this one from Gem Software.

All the subtle arts of the game have been included, even top, back, left and right spins can be accomplished with ease. Taking advantage of the realistic colours and pixel precision of the CPC464 you can be forgiven for forgetting that you're not playing on a real table... There's even a sliding score frame!



GT64 users need not despair however, since there is an option to choose numbered balls. This of course, is also useful for those of us that aren't so familiar with the game and need some prompting when it comes to deciding in which order the balls should be potted. A definite must to stop those petty arguments when playing with other members of the family!

If you're really short of time before a big match with your best friend, brush up your techniques with the 6 ball practice game. This option is bound to prove popular with the real Snooker Champions amongst us and indeed for the beginner as well.

Certainly, one of the best games to be introduced for the CPC464 so far, and I predict that it will be as popular as it is addictive. Definitely a 'must' for any Snooker enthusiast!

CONTINUED ON PAGE 57

Graphics animation

David Robinson

.....puts a little action into your graphics with the ink switching facility in the CPC464 colour pallette

The month since I wrote the last column has been a mixture of disappointments and delights. Because of the time lag between the writing of an article and the magazine actually being published I am writing about October/early November, although you may not read this until late November.

Disappointment 1 was the theft of the only draft of this article from my car whilst returning from holiday. However it's an ill wind that blows nobody good, and I was delighted to be able to try out an early version of TASWORD on the CPC464 when re-writing this.

Disappointment 2 was a visit to the IBM USER show at OLYMPIA in early September, where I had hoped to be treated to a display of 'State of the art' graphics. The cheapest computer there cost around £2000 + VAT and ranged upwards to mainframes costing over £100,000. Given the cost of the kit it didn't seem unreasonable to expect to see applications which were of a significantly higher standard than can be achieved on home micros.

Alas, for the business micros which I saw, the reverse case was true. The sort of colour graphics which are available on your CPC464 are at least as good as on general purpose machines costing up to £5000. Only the very expensive mini/mainframe machines linked to colour plotters (costing many times the price of an AMSTRAD) offered facilities which could not be matched on the CPC464 with a few hours careful work.

This month I want to take a look at the subject of animation. Whilst this is normally associated with machine code routines written by genius programmers in the small hours of the night the CPC464 has a feature which will allow us to create some spectacular effects using BASIC. The MASKED INKS feature which is implemented in the hardware is similar to the colour switching used on full arcade games machines.

The way this works is best illustrated by an example. Imagine one of those painting by numbers outfits where the canvas is marked out with the number of each colour to be used. The box contains a number of pots of paint each given a different number. If we assume that there are 27 numbers, ranging from 0 BLACK to 26 BRIGHT WHITE, these will correspond to the CPC464 colours shown in APPENDIX IV page 6 of your user manual.

If you can also visualise a set of rules under which we cannot paint directly from the pots of paint but must use a 'pallette'. This pallette has only four pads onto which we can transfer paint from the pots. Let's say that pad number 1 contains BRIGHT GREEN from pot number 18 and we start to paint the picture. The bit of magic in our system comes when we wipe pad number 1 clean and pour on some paint from pot number 24 then all the BRIGHT GREEN on our picture would change to BRIGHT YELLOW.

The CPC464 can perform this type of colour switching very quickly indeed and we can take advantage of this feature to produce animated effects. Our program for this month imitates the 'flying through the trench' scene from the Star Wars film, and uses a rotation sequence of the pallette colours to give the illusion of movement along the trench.

The major tasks in achieving the animated effect are:-

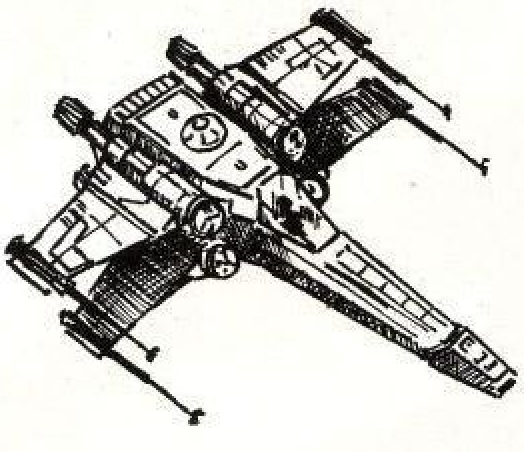
1) Set up the colours on the pallette.
2) Draw the picture.
3) Rotate the colours on the pallette.

Program commentary.

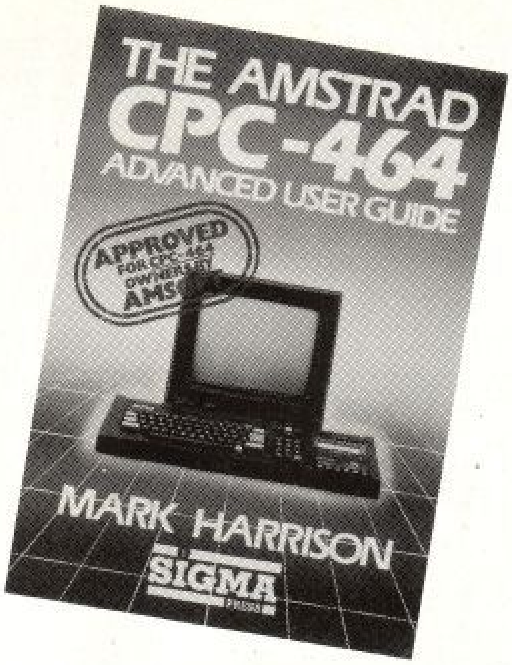
LINES 170 to 200	Select forward or backward motion.
LINES 210 to 220	Produce a sound to match the speed of the motion. The variable rep is kept above 10 so that the sound remains in an audible frequency.
LINES 290 to 390	Draw the trench by repeatedly drawing the 3 sides of a square and increasing the side length. Colours are changed at decreasing intervals so that the bands simulate perspective.
LINES 500 to 530	Set up the pallette colours. Note that pads 1 & 2 have the same PHYSICAL colour (ie BRIGHT YELLOW) but the computer treats them as different LOGICAL colours. This allows us to ROTATE the pads more effectively.
LINES 550 & 560	Make the joystick and cursor keys produce the same codes to simplify programming for dual control.
LINES 610 to 780 & LINES 820 to 990	Successively ROTATE the LOGICAL colours around the pallette to produce the illusion of movement. Note that pad 0 (i.e. INK 0) is kept BLACK because this is the background colour.

Run the program in MODE 1 using the UP ARROW or joystick forwards to move along the trench and the DOWN ARROW or joystick back to reverse. Using this program as a base you could write an interesting 'blast the alien' game.

```
100 REM ******************************
110 REM ******************************
120 REM *  STAR WARS TRENCH PROGRAM  *
130 REM ******************************
140 REM ******************************
150 GOSUB 410
160 GOSUB 250
170 z$=INKEY$
180 IF z$="" THEN 170
190 IF ASC(z$)=241 THEN GOSUB 800
200 IF ASC(z$)=240 THEN GOSUB 590
210 rep=INT(delay/10) : IF rep<10
    THEN rep=10
220 SOUND 1,INT(delay*10),rep,15,15,15,5
230 FOR l=1 TO delay : NEXT l
240 GOTO 170
250 REM  ******************************
260 REM  *          DRAW TRENCH       *
270 REM  ******************************
280 CLS
290 FOR xc=10 TO 320
300 c=INT(colour+0.5)
310 PLOT xc+320,yc1,c
320 DRAW xc+320,yc2,c
330 DRAW 318-xc,yc2,c
340 DRAW 318-xc,yc1,c
350 yc1=yc1+0.6
360 yc2=yc2-0.6
370 colour=colour+((318-xc)/640)/4
380 IF colour+0.5>=4 THEN colour=colour-3
390 NEXT
400 RETURN
410 REM ******************************
420 REM *          INITIALISE        *
430 REM ******************************
440 colour=1
450 yc1=200
460 yc2=210
470 PAPER 0
480 BORDER 0
490 delay=400
500 INK 0,0
510 c1=24 : INK 1,c1
520 c2=24 : INK 2,c2
530 c3=2 : INK 3,c3
540 accel=0.95
550 KEY DEF 72,1,240
560 KEY DEF 73,1,241
570 RETURN
580 REM ******************************
590 REM *     ROTATE FORWARDS        *
600 REM ******************************
610 ON r GOSUB 670,710,750
620 r=r+1
630 IF r>3 THEN r=1
640 IF dir=1 THEN delay=delay*accel :
    GOTO 660
650 dir=1 : delay=400
660 RETURN
670 INK 1,c1
680 INK 2,c2
690 INK 3,c3
700 RETURN
710 INK 1,c3
720 INK 2,c1
730 INK 3,c2
740 RETURN
750 INK 1,c2
760 INK 2,c3
770 INK 3,c1
780 RETURN
790 REM ******************************
800 REM *     ROTATE BACKWARDS       *
810 REM ******************************
820 ON r GOSUB 880,920,960
830 r=r+1
840 IF r>3 THEN r=1
850 IF dir=2 THEN delay=delay*accel :
    GOTO 870
860 dir=2 : delay=400
870 RETURN
880 INK 1,c1
890 INK 2,c2
900 INK 3,c3
910 RETURN
920 INK 1,c2
930 INK 2,c3
940 INK 3,c1
950 RETURN
960 INK 1,c3
970 INK 2,c1
980 INK 3,c2
990 RETURN
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BOOK REVIEWS



The Advanced CPC 464 User Guide.

Mark Harrison
SIGMA
ISBN 18 505 801 46
£6.95

Writing a computer book is difficult. So many things depend on a knowledge of other areas of computing. Some topics are quite difficult; most beginners have trouble understanding arrays. Other topics, such as the use of PRINT, whilst being quite simple, have a lot of fiddly bits which need explaining. The Advanced CPC464 User Guide handles all these problems admirably. There is a small amount of referring forwards but this cannot be avoided. In addition to teaching the reader how to use commands, The Advanced User Guide teaches techniques. This is particularly true of the maths chapter. Books often just give a list of all the commands avaliable and leave it at that. The Advanced User Guide goes further. It covers use of standard formulae, simulation and recursion. The author has obviously had some technical backup, and takes a brief look at the insides of the machine from the software point of view, with a section on the memory map.

My one major critisim of the book is its name. While it *is* an advanced version of the user's guide, it is not a guide for advanced users in the style of the BBC Advanced User's Guide. The Beeb version is full of machine code explanations and tricks with the operating system - more along the lines of Amsoft's Concise Firmware Handbook, SOFT 158. The CPC version will however still be of value and teach the most experienced programmer new tricks. The examples are not the usual lame demonstrations of how to use BASIC, but the kind of useful things which you itch to type in on first seeing them. A plus point in this respect is that the examples are very short - while some people may enjoy typing in listings I find it a chore and only do it for the end result.

The *Advanced CPC 464 User Guide* should soon establish itself as one of the better books for our machine.

The Amstrad CPC464 Explored

John Braga
Kuma
ISBN 0-7457-0131-0
£7.95

Kuma have been around in the computer world for a long time and book publishing is a well established sideline. They are not a true publisher and the presentation of the book shows this. However, presentation is not everything, content is more important and here *'The Amstrad CPC464 Explored'* scores heavily.

Unlike the majority of books, this rushes through the basics of using the computer and concentrates on sound, graphics and machine code with a section on how to write a home accounting program to round off.

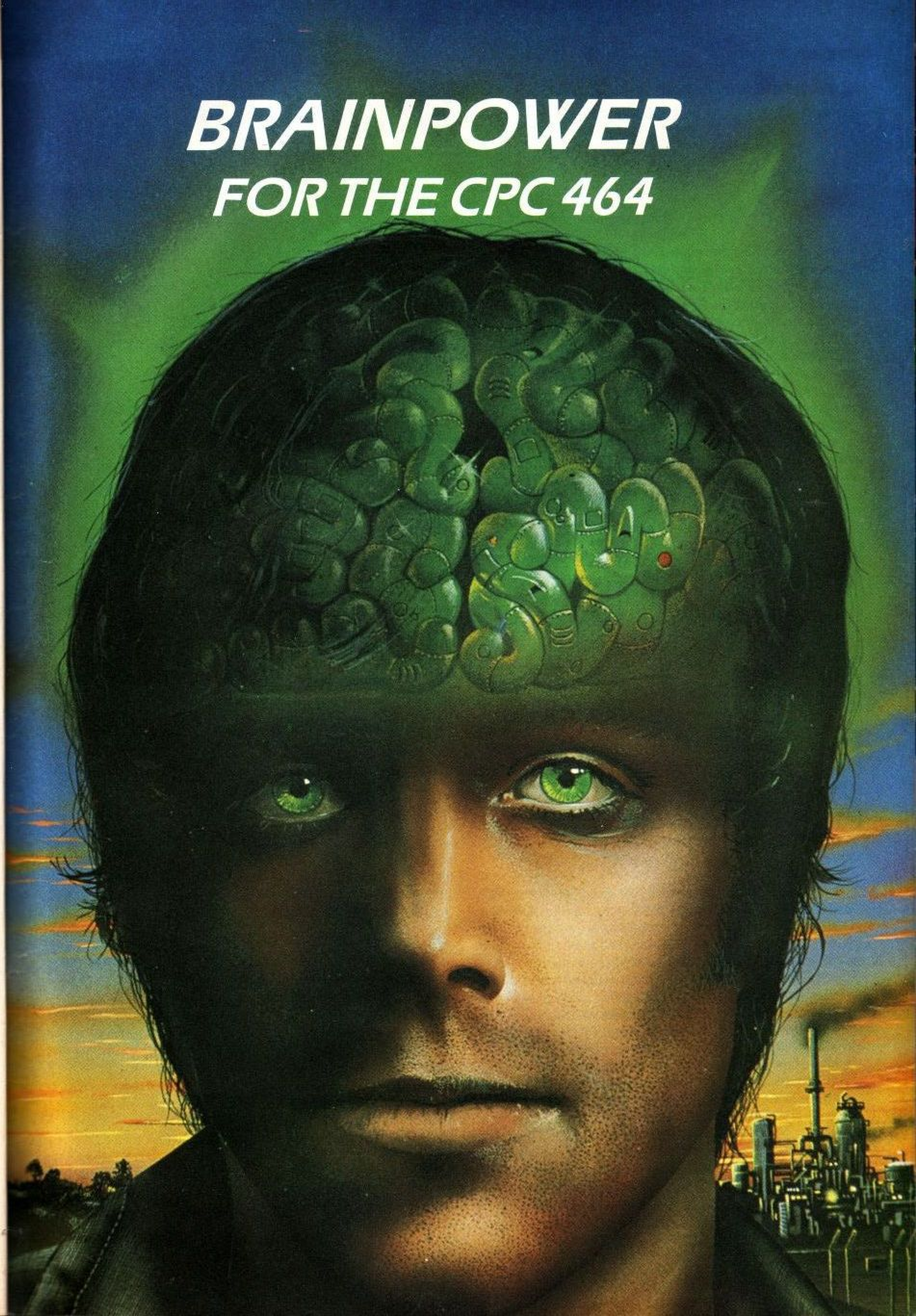
The first part of the book, getting acquainted, is ideal for a user who knows BASIC but not the CPC464. I wish I had seen this book when I first bought my machine. The listings are clear with the shorter ones printed in the same, daisywheel, typeface as the rest of the book and the longer ones listed on a good dot-matrix printer. It is a shame that the printers used, took CHR$(35) to mean £ instead of # since this may confuse the novice. The section on sound is the best I have seen and this alone is worth buying the book for. It is not the role of this book to teach music but it does go a fair way and includes a section on harmony. Few commercial programs make use of the computer's sound to full effect -this book shows what can be done. It will not turn you into the next Jean-Michel-Jarre but it will take the computer beyond the stage of a musical box.

The third section is a cross between how to use graphics and how to write games. It does the second job better than the first. There are two quite sweet games included and whilst the chapters do not go into the use of graphics in depth they do give a decent grounding.

The final topic handled by the book is machine code. KUMA sell the ZEN assembler for the CPC464 and this is the one used by the book. The documentation with ZEN is quite poor - but despite this, it is a good assembler and with the help of The Amstrad CPC464 Explored, it is easy to use.

The last chapter is on how to write a home accounting program. This is interesting to read but I'm not sure how useful I would find the end result.

At £7.95 *The Amstrad CPC464 Explored* is not cheap, but does provide good value for money.

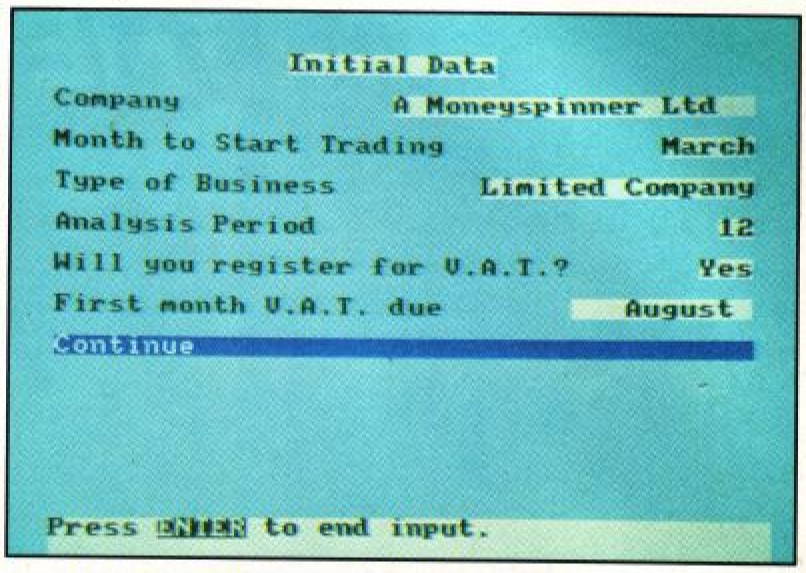

BRAINPOWER
FOR THE CPC 464

Brainpower

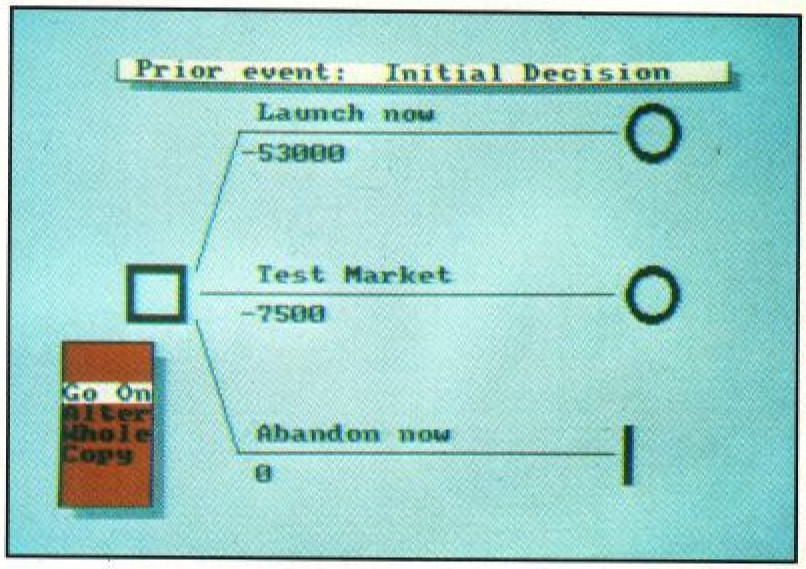
Greg Lang takes a cerebral look at some exciting software that's designed to exercise the thinking processes of the CPC464 and the User

I had been looking forward with eager anticipation to reviewing the first four titles from the new Brainpower range to have been transported to the CPC464; I was not disappointed. This new range from Triptych Publishing (marketed under the Amsoft label) has been receiving a great deal of press attention since the launch of their first 6 titles in September; the CPC464 versions promised considerable improvements in design and performance. Triptych's advertising slogan reads: 'Now you and your micro can bring out the best in each other' - a fairly hefty claim, but one that I now believe is fully justified.

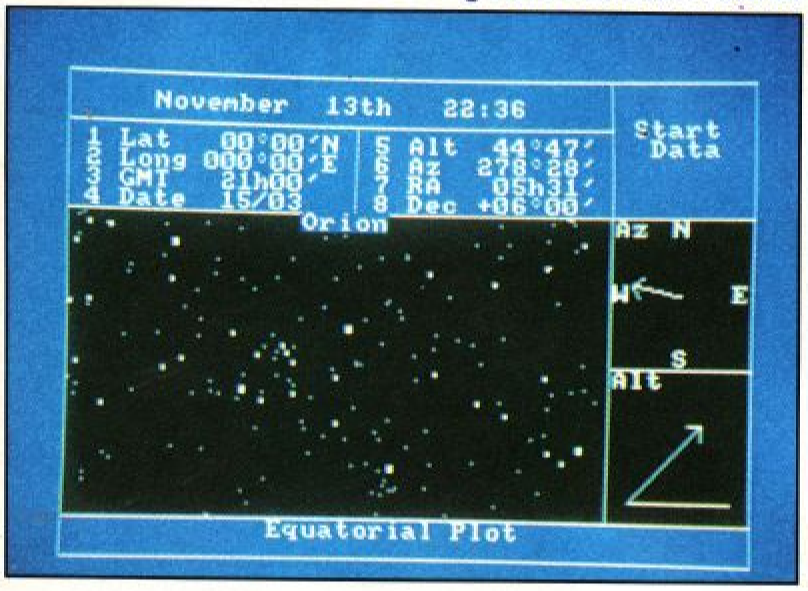
Triptych have attempted to provide interesting, useful and substantial software for users who want to use their machines for more than just games. Each of the titles has three components; a written tutorial, a teaching program, and an applications program. By using this formula and with a careful choice of interesting and substantial subjects they have brought the first titles in this series to market.



▲ Action from 'Entrepreneur' ▼Decisions made simple



▼ Seeing stars with Star Watcher



'If all else fails, read the manual'

... so goes the oldest joke in the computer business. The awful and inescapable truth of this saying has dawned upon just about every manufacturer and software writer by now, yet few have come up with such a brilliant and sensible solution as Triptych. Instead of producing manuals that project a cold, jargon laden and condescending presence the moment the hapless user opens the first page, the Brainpower series of programs have manuals supplied with them that are quite irresistable reading.

The tutorial and teaching programs are used together to train you how to master the subject rather than how to use the software. This concept is refreshingly imaginative - and the training sections of all four titles are the most effective demonstration of the computer's ability to animate and simulate difficult concepts that I have yet seen. They have been carefully thought out to exploit the complementary features of books and computer software; the computer illustrating those things which are difficult and confusing to explain in text - and impossible to demonstrate in a book.

The applications programs are all beautifully produced and very powerful. It is these which will help solve the users' real problems once they understand how to apply the subject. A fellow journalist who is reviewing them for a different publication feels that Brainpower is the most significant and innovative software to come on to the market in recent years - I agree. Two of these titles, Entrepreneur and Project Planner, have been awarded 5 stars each in the new Which? Software Guide - credit indeed when you consider that only 50 titles out of 1,000 achieved a 5 star rating.

Value

On the face of it, the price may seem high. Certainly compared to some of the RAM fodder churned out these days, £24.95 is a positive fortune! But nevertheless, don't judge a program by its price - it's value that counts.

All of these titles are worth the money for their training value alone, but you get a lot more besides. All of the software is written to an excellent standard of design and presentation and the tutorial/manuals are elegantly written, admirably clear and do full justice to the software. Each title supports current Amstrad peripherals such as the DMP1 printer and the DDI 1 disc drive. At a stroke, these titles and the new AMSWORD/Tasword 464 word processor have realised the promise of the CPC464 as a true small business machine. I can only look forward to another commission to review the next releases.

ENTREPRENEUR

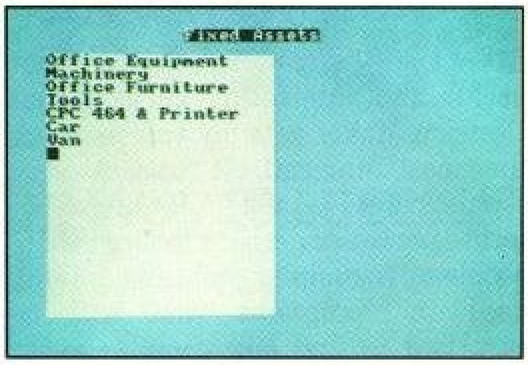
Entrepreneur was the first program I reviewed and it achieves its objective as being the 'complete business start up kit'. It is designed to give users all the background they need to understand how businesses work and the applications pack allows them to make a detailed analysis of any business venture - an idea so obvious, I am surprised no-one has thought of it before.

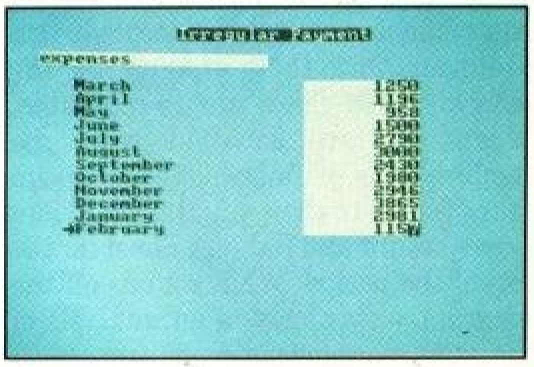
The training section is a combination of tutorial and program which pull together all the various strands about how and why businesses work. The presentation of these ideas is quite beautiful; the tutorial analyses a small business from the day it starts and then tracks it as it grows bigger and more complex. This makes the introduction and understanding of some basic business concepts very easy to assimilate and I was surprised to find how much I learned. These basic ideas are then developed as you work through the tutorial and you end up with a comprehensive commercial education.

The tutorial begins by explaining what a balance sheet is, why it is divided into assets and liabilities and how double-entry bookkeeping works. From then on, all of the examples and concepts in the following sections are illustrated by showing their effects on the computer's balance sheet which gradually grows in size and complexity. All of the elements which make up the balance sheet are introduced one by one - cash, stock, debtors, creditors etc. The concepts of 'break-even' and 'contribution' are explained in detail and this leads in to what a profit really is and the difference between profit and cash.

There are two sections on tax, one on VAT and the other on the various forms of company taxes depending on whether the business is a sole trader, a partnership or a limited company. These complexities are explained with admirable clarity and make these confusing and often frightening features of a business simple to understand.

As well as training users about a business, there is a very substantial section on how to make a 'business plan'. This is the all-important document presented to bank managers when a start-up business is looking for finance. Completing one in as much depth as this example will not be a trivial activity, but by the end of it you will understand your business, your market and your competition inside out - and you can be sure of impressing your bank manager that at least you know exactly how and when your proposed venture is likely to fail......





Getting organised with Entrepreneur

There are two applications programs; one for a business making a single product line and one for a business with multiple products: one of the compromises essential for programs that are presently written primarily for tape based systems.

The applications manual begins with an explanation of how to use each of the programs and gives examples of five different types of business and how each one would use the software. The multi-product program is the most versatile and can be used in many ways for all kinds of business and both programs will deal with either manufacturing or service businesses. You can choose the length of time for the analysis period from 6 to 18 months which is ample for most businesses.

The manual explains very clearly how the applications programs are used and an appendix at the back of the book sensibly allows you to write down all your data before you begin to use the program.

Impressive

I was very impressed by the simple and sensible way these applications programs are structured. The data needed is the assumptions (or actualities) about the business. The data is entered in four main sections; Fixed Assets, Expenses, Employees and a composite section which deals with the costs of the product and sales expectations. Instead of getting involved in complex calculations you can concentrate on the most important aspects, such as when you can buy things, how much they cost, whether they are bought for cash or on credit and whether they are liable for VAT. You also have to tell the computer when you expect to pay for things, but this is quite painless because of the facility to enter regular payments (monthly,quarterly etc) just once.

Once all the data is entered, the computer begins to process it in a number of different ways. The first calculation checks that you have bought enough stock to make the amount of product you expect to sell and then produces a break-even analysis. This will tell you whether the contribution from sales is sufficient to cover the overhead costs. If it doesn't, you can go on with the rest of the program, but it is an obvious opportunity to go back and take a harder look at your initial figures. The next computation produces the monthly cash flows of the business. To my mind, this is one of the most important features of the program. It shows, month by month, how much cash is coming in from sales and how much is being spent, giving a consolidated cash figure for the month. More businesses fail because they can't manage their cash properly than because they can't sell their wares -this may sound paradoxical, but the teaching program explains why.

These calculations, take into account all the expense and revenue forecasts, their credit periods, VAT and company tax assumptions. There is a lot of number crunching involved and it takes time: you may have to wait a moment or two if you have thrown a complex problem at the model. There is almost no other way of doing these calculations, even on a big and ugly spreadsheet: at least while you're waiting it's polite.

The cash flows are run without including any money to finance the business. This shows you how much you will need to find to run the business. The next step is to put in the finance requirements you think you will need.

These are entered as a combination of equity (own money), long term loan and overdraft. Once these are entered, the monthly cash flows are re-computed. When you are satisfied with the combinations of finance, the program takes you on to show you the Profit and Loss Account and Balance Sheet for the end of the period. What rounds off the program very nicely is an analysis of the performance of your new venture.

A 'sensitivity' analysis is produced to explain which expenditures or sales have the greatest effect on your profits. It also shows the average length of time you are taking to pay and receive cash and produces a figure which measures the overall profitability of the business. This is very useful and enables you to go back into the program to try and make the business more profitable and efficient - it also tells you whether you are better off putting the money in a building society!

Hotels on Park Lane and Mayfair?

One of the great features of the program as a whole, is the way it 'holds your hand' as it goes along, taking you along quite a complex route in a very friendly and easy way. Entrepreneur is a most excellent package and will prove quite invaluable to anyone running or planning a business. I think it will also appeal to many people as a fascinating simulation game - we've all got at least one good novel and one good business inside us and as a simulation game which you can play competitively: this sure as hell beats Monopoly.

> *"who would dare start a business without using Entrepreneur?*

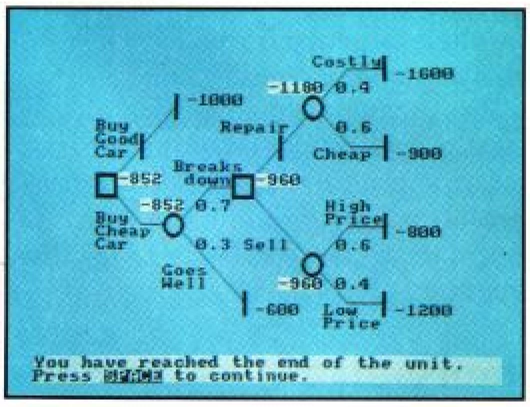
These programs are designed to lift the veil of mystery which surround business management - which they achieve admirably. The training course gives a very solid understanding of the various elements which make businesses work and clear guidance on what and what not to do. The applications program and the business planning advice will enable anyone in business to confront that awful bogey man, the bank manager, with a professional plan and real confidence. I wonder who would dare start a business now without using Entrepreneur?

DECISION MAKER

All of the Brainpower titles are about useful and interesting subjects, but Decision Maker gets my vote as being the most unusual. It uses a very sophisticated (and intimidating) technique called decision theory to help people solve complex problems. Having used the programs, you will be surprised to find how complex many ordinary problems are, and this will show you how to analyse them in a systematic and fascinating way.

The theory divides problems up into a number of different elements; decision points from which you can elect to take any number of different actions, each action can then be affected by chance events which in turn can produce a number of outcomes; these then require further decisions to be made and so on. The system gives you an excellent framework to use to consider any problem and helps you to think logically and thoroughly about how you should tackle it.

The more you think about it, the more branches get added to the tree. Both actions and outcomes can have values attached to them and the chance events can be graded by assessing the probability of them happening. These are then calculated backwards through the tree after it has been built, and the program will tell you which decision you should make and outlines where all the risks are.



Being decisive with Decision Maker

Basics

The training section operates in the usual Brainpower formula; the written tutorial and teaching program being used together to teach the principles of the subject. The program is broken down into teaching modules, each of which has a test facility at the end. Time spent loading the modules can be used to read the introduction in the tutorial which is clear and concise. The subject, which gets quite complex at times, was explained well without being patronising. Each section leads on to the next and this helps to build your confidence in the subject, as well as your knowledge.

Instead of just skimming through the sections, I found myself becoming increasingly involved with the learning process. Apart from the subject itself there are lots of interesting titbits of information which make the training sessions a lot of fun. The training section is pretty 'meaty' and took me the best part of a day's concentrated effort to work through. I think it a pretty fair indication of the compulsion of this form of learning and what a fascinating and unusual subject it is , was that it had gone midnight before I turned the computer off. How time flies when you're enjoying yourself!

The applications package lets you design your own decision trees on the computer. The screen designs are nicely executed and reflect the care taken to put this software together. I built a number of trees to solve different problems and was able to make my approach more sophisticated as I went on.

All the Brainpower titles are menu driven, and this one has a series of overlapping menus rather like those on the Apple Macintosh. These are beautifully designed and operate quickly and easily. The menus take a few minutes to learn but then it becomes very easy to get about the program, make changes to the tree and then display the answer immediately. Individual decisions or chances are designed on the whole screen and the program takes you along the trail of your problem.

When the tree gets big enough you can view the whole tree at one go. Because these trees can get to be very big, there is a clever system which enables you to view a window of the individual branches just by moving the cursor through the tree.

The most difficult problem I tried wasn't mine at all. A friend had been agonising for months about whether to leave his job as a programmer with a large multinational company and set up on his own. He knew he could sell his services as a contract programmer and just to compound the issue, couldn't decide whether to start here or abroad. After about three hours he sat back from the screen with his problem solved. He is now working as a contract programmer in Holland, probably with a Porsche! *Cont Page 65*

RSX and the CPC464

Cliff Lawson points the way to successful RSXing. Relocation rules OK?

The machine code program presented here adds an extra command to the BASIC of the Amstrad CPC464. The firmware provides a routine, KL LOG EXT (#BCD1) which may be called in order to introduce an external command server. This server understands new commands which are distinguished in BASIC by preceeding their name with a vertical bar (shifted @key). Commands added in this way are known as Resident System eXtensions (RSXs).

In order to log these new commands KL LOG EXT is called with the BC register pair containing the address of `rsx_table` and the HL register pair containing the address of four bytes of memory which may be used as workspace.

```
KL_LOG: EQU   #BCD1
 entry: EQU   $
        LD    BC,rsx_table
        LD    HL,work
        JP    KL_LOG_EXT
 work:  DEFS 4
```

These new commands would then be called as:

```
CALL entry

|circle,‹param1›,‹param2›,...
|fill,‹param1›,‹param2›,.....
|triangle,‹param1›,‹param2›..
```

The only problem with the above is that the labels `rsx_table`, `name_table`, etc. are not relocatable, so the code would always have to be loaded at the same address, which may not always be convenient (particularly if an extension ROM such as used in the DDI-1 disc interface has already reserved a chunk of memory), clearly some method of making such a routine relocatable is required.

The method presented here uses the Z80 restart instruction `RST #30` (`RST 6` in the firmware manual). This restart is available for modification by the user. The code overleaf will put a short routine at `#30` which will return in HL the address of the byte following the `RST #30` that called it. This can then be used in modifying the rest of the code so that all absolute values are correct.

It is possible to pass parameters to an RSX by listing them after the command name, separated by commas. These are processed within the machine code routine which understands that on entry to the RSX routine, the A register contains the number of parameters and the IX register points to an area of memory at which the parameters are stored in the opposite order to that in which they were typed after the command name. In other words IX is acting rather like a stack pointer. An example may make this clearer:

```
|test,5,2049,3
```

then IX points to an area of memory:

```
IX+0 --> 3   -each parameter is
IX+1 --> 0        held in two bytes
IX+2 --> 1   -
IX+3 --> 8   -8*256+1=2049
IX+4 --> 5
IX+5 --> 0
```

and A = 3

The format for the table of data whose address is passed to KL LOG EXT is as follows (an example similar to one given in the Firmware Manual):

```
rsx_table:  DEFW name_table
            JP   circle_routine
            JP   fill_routine
            :
            JP   triangle_routine
name_table: DEFM "CIRCL"
            DEFB "E"+#80     sign bit set marks end of word
                 DEFM "FIL"
                 DEFB "L"+#80
                 :
                 DEFM "TRIANGL"
                 DEFB "E"+#80
                 DEFB 0          zero marks end of table
```

```
      LD   HL,#E9E1          ; load code shown below to RST #30
      LD   (#30),HL
      RST  #30               ;
this: EX   DE,HL             ; DE will now contain the absolute address of 'this'
      :
```

The code that is loaded into the user restart is:

```
      POP HL                 ; pick up return address
      JP   (HL)              ; then return with HL containing return address
```

The code to log the RSX command would now become:

```
      LD   BC,rsx_table-this ; when assembled the offset from 'this' to the
      LD   HL,work-this      ; relevant label is generated

      JP   #BCD1             ; goto KL LOG EXT (RET will return to BASIC)
```

In listing 1, the relocating routine is between lines 100 and 430. The instructions that must be made absolute each have a label of the form Rnn: At the end of the program is a table of relative offsets. Those that contain a +1 on the end do so because the word to be corrected forms bytes 2 and 3 of a three byte instruction (e.g. LD HL,label) while the entry that does not have +1 on the end refers to a two byte value that must be corrected (e.g. DEFW label).

The relocating routine may be added to any program that is to be made position independent, all that is required is that each otherwise absolute value should be assembled as an offset from a fixed point (e.g. 'this') by adding '-this' to the end of it. It is also necessary to create a rel_table which contains the offsets from 'this' to each of the instructions that are to be modified, the end of this table is marked with a word whose value is zero.

The actual RSX routine (listing 1) provides a new command

|GETCHAR,‹param1›,‹param2›

Where the first parameter is the address of the variable in which the ASCII code for the character at the current cursor position will be returned; the second parameter is the number of the stream from which the character should be read.

More generally, to read the code for a character at position x,y in WINDOW n, one would use:

```
a%=0 :REM a% must exist
      before GETCHAR called
locate #n,x,y
|GETCHAR,@a%,n
```

After execution of these commands, a% will hold the code for the character at the desired position (256 if it was not recognisable).

The @ in @a% causes the address of the integer variable to be passed, rather than its value. The routine then stores the result at this address, for BASIC to retrieve later. The routine itself works by first of all checking that A is 2, that is, that there are two parameters, if there are not then an error is flagged. The address of the integer variable that is passed as the first parameter is then retrieved and stacked.

The stream number to be examined is then picked up and is swapped with the current stream (0) by the firmware routine TXT SWAP STREAMS. The character at the cursor position is then read with TXT RD CHAR, which returns its code number in the A register, this number is then placed into the lower byte at the address of the integer variable, HL which points to this address is then incremented so that it points at the higher byte, then the SBC A,A and INC A instructions load A with 0 if the carry bit was set on return from TXT RD CHAR (indicating that the character was recognised) and 1 if it was clear.

This is then placed at the higher byte of the integer variable so that 256 is returned if the character was not recognisable (code 0 to 255). Finally the streams are swapped back. The error routine just prints a suitable error message.

In order to get this program into your computer, the loader program in listing 2 may be used. The |GETCHAR routine may be entered by typing in the lines of code given in listing 3. Alternatively the assembler source given in listing 1 can be used with the DEVPAC assembler. Once the code has been entered it may be saved as follows:

```
SAVE "RSXSCR.BIN",b,
      load.address,138
```

The BASIC program given in listing 4 demonstrates the use of the new command after first setting HIMEM and loading the object code it reads the contents of one half of the screen and prints them in the reverse direction at the other side of the screen, at the same time demonstrating the use of |GETCHAR with windows, where all windows are assumed to cover the whole screen as at switch-on.

LISTING 1 : (Computer originated listing)

```
Hisoft GENA3.1 Assembler. Page     1.
Pass 1 errors: 00
8000                      org  #8000
                ;
                ;
                ; RSX to add |getchar, return_char%,stream_num
                ;
BCD1            kl_log: equ  #bcd1
BB5A            txt_ou: equ  #bb5a
BBB7            txt_sw: equ  #bbb7
BB60            txt_rd: equ  #bb60
8000            entry:  equ  $
8000  21E1E9              ld   hl,#e9e1
8003  223000              ld   (#30),hl
8006  F7                  rst  #30
8007  EB        this:     ex   de,hl
8008  217700              ld   hl,rel_tab-this
800B  19                  add  hl,de            ; HL has abs addr of rel_table
800C  4E        loop:     ld   c,(hl)
800D  23                  inc  hl
800E  46                  ld   b,(hl)           ; BC has first entry in table
800F  79                  ld   a,c
8010  B0                  or   b
8011  2815                jr   z,done           ; entry was 0000 so exit loop
8013  E5                  push hl               ; stack current table pointer
8014  60                  ld   h,b
8015  69                  ld   l,c
8016  19                  add  hl,de             ; make table entry absolute
8017  E5                  push hl                ; and stack this value
8018  4E                  ld   c,(hl)
8019  23                  inc  hl
801A  46                  ld   b,(hl)            ; get contents pointed to by entry
801B  60                  ld   h,b
801C  69                  ld   l,c
801D  19                  add  hl,de             ; make this absolute
801E  44                  ld   b,h
801F  4D                  ld   c,l
8020  E1                  pop  hl                ; retrieve absolute entry value
8021  71                  ld   (hl),c
8022  23                  inc  hl
8023  70                  ld   (hl),b            ; store calculated abs value at this addr.
8024  E1                  pop  hl                ; get addr of previous table entry
8025  23                  inc  hl                ; make HL point at next
8026  18E4                jr   loop
8028            done:     equ  $
                ;
8028  012A00    r01:      ld   bc,rsx_tab-this
802B  216600    r02:      ld   hl,work-this
802E  C3D1BC              jp   kl_log_ext          ; log on new command
8031            rsx_ta:   equ  $
8031  2F00      r03:      defw nam_tab-this
8033  C33700    r04:      jp   scr-this
8036            nam_ta:   equ  $
8036  47455443            defm "GETCHA"
803C  D2                  defb "R"+#80             ; final character has sign bit set
803D  00                  defb 0                  ; finish table with zero byte
803E            scr:      equ  $
803E  FE02                cp   2
8040  201E                jr   nz,error
8042  DD6E02              ld   l,(ix+2)            ; pick up int. var. address
8045  DD6603              ld   h,(ix+3)
8048  E5                  push hl                  ; and save it on stack
8049  DD4600              ld   b,(ix+0)            ; get stream number
804C  0E00                ld   c,0
804E  C5                  push bc
804F  CDB7BB              call txt_swap_streams    ; swap to desired stream
8052  C1                  pop  bc
8053  CD60BB              call txt_rd_char         ; pick up the character
```

```
8056  E1         670          pop  hl
8057  77         680          ld   (hl),a            ; store char in low byte of int. var.
8058  9F         690          sbc  a,a               ; sub carry (give 0 if clear, 1 if set)
8059  3C         700          inc  a
805A  23         710          inc  hl
805B  77         720          ld   (hl),a
805C  CDB7BB     730 ss:      call txt_swap_streams
805F  C9         740          ret
8060             750 error:   equ  $
8060  216A00     760 r05:     ld   hl,msg-this       ; haven't got two parms
8063  7E         770 pmess:   ld   a,(hl)
8064  23         780          inc  hl
8065  CD5ABB     790          call txt_output
8068  FE0A       800          cp   10
806A  20F7       810          jr   nz,pmess
806C  C9         820          ret
806D             830 work:    defs 4
8071  42616420   840 msg:     defm "Bad Command"
807C  0D0A       850          defb 13,10
807E             860 rel_ta:  equ  $
807E  2200       870          defw r01-this+1
8080  2500       880          defw r02-this+1
8082  2A00       890          defw r03-this
8084  2D00       900          defw r04-this+1
8086  5A00       910          defw r05-this+1
8088  0000       920          defw 0

Pass 2 errors: 00
Table used 263 from 300
```

LISTING 2: (Computer originated listing)

```
10 REM              *----------------*
20 REM              *  LISTING   2   *
30 REM              *----------------*
40 MODE 2
50 GOSUB 270
60 INPUT "Load.address :",addr : REM  recommended 'addr' is HIMEM+1 after MEMORY=HIMEM-138
70 lin$=""
80 WHILE lin$<>"END"
90  PRINT HEX$(addr,4);":";:LINE INPUT lin$
100  lin$=UPPER$(lin$)
110  chk=0:oldaddr=addr
120  FOR a=1 TO LEN(lin$) STEP 3
130   m$=MID$(lin$,a,1)
140   l$=MID$(lin$,(a+1),1)
150   m=ASC(m$)
160   l=ASC(l$)
170  IF m>&2F AND m<&3A THEN m=m-&30 ELSE
     IF m>&40 AND m<&47 THEN m=m-&37 ELSE PRINT "error",m$
180  IF l>&2F AND l<&3A THEN l=l-&30 ELSE
     IF l>&40 AND l<&47 THEN l=l-&37 ELSE PRINT "error",l$
190  byt=m*16+l
200  IF a=LEN(lin$)-1 THEN GOTO 240
210  chk=(chk+byt) MOD 256
220  POKE addr,byt
230  addr=addr+1
240  NEXT a
250  IF chk<>byt THEN PRINT "Checksum Error - retype line":a=LEN(lin$):addr=oldaddr
260 WEND
270 '*----------------------------------------*
280 '*  Instructions - can be omitted, just put  *
290 '*  560 RETURN                               *
300 '*----------------------------------------*
```

```
310 PRINT,"       Machine code loader"
320 PRINT,"       ======= ==== ======"
330 PRINT
340 PRINT"When asked, input address at which to start loading the code"
350 PRINT"this is taken as a decimal value - to use hex, prefix with &."
360 PRINT
370 PRINT"Then enter lines of bytes, each separated by a space, the final"
380 PRINT"one being the checksum for that line."
390 PRINT
400 PRINT"example:-"
410 PRINT
420 PRINT"load address:&8000"
430 PRINT"8000:01 02 03 04 0A      (where 0A is the checksum)"
440 PRINT"8004: etc."
450 PRINT
460 PRINT"If an error occurs, 'Checksum Error - retype line' will be printed"
470 PRINT
480 PRINT "example:-"
490 PRINT
500 PRINT"8000:01 02 03 04 01 01 01 37"
510 PRINT"Checksum Error - retype line"
520 PRINT"8000:01 02 03 04 01 01 01 0D"
530 PRINT"8007: etc."
540 PRINT
550 RETURN
```

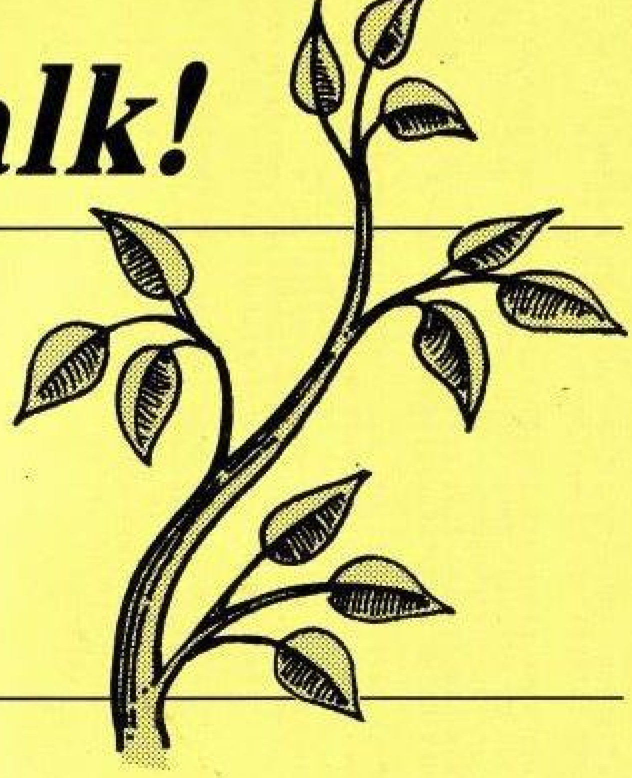
LISTING 3: (Computer originated listing)

```
8000  21 E1 E9 22 30 00 F7 EB 1F
8008  21 77 00 19 4E 23 46 79 E1
8010  B0 28 15 E5 60 69 19 E5 99
8018  4E 23 46 60 69 19 44 4D 2A
8020  E1 71 23 70 E1 23 18 E4 E5
8028  01 2A 00 21 66 00 C3 D1 46
8030  BC 2F 00 C3 37 00 47 45 71
8038  54 43 48 41 D2 00 FE 02 F2
8040  20 1E DD 6E 02 DD 66 03 D1
8048  E5 DD 46 00 0E 00 C5 CD A8
8050  B7 BB C1 CD 60 BB E1 77 73
8058  9F 3C 23 77 CD B7 BB C9 7D
8060  21 6A 00 7E 23 CD 5A BB 0E
8068  FE 0A 20 F7 C9 00 00 00 E8
8070  00 42 61 64 20 43 6F 6D 46
8078  6D 61 6E 64 0D 0A 22 00 D9
8080  25 00 2A 00 2D 00 5A 00 D6
8088  00 00 00
```

LISTING 4: (Computer originated listing)

```
10 MEMORY HIMEM-138
20 H=HIMEM+1:LOAD "rsxscr.bin",H:CLOSEIN
30 CALL H
35 it%=0
40 FOR y=1 TO 25
50  FOR x=1 TO 20
60  LOCATE #3,x,y
70  |GETCHAR,@it%,3
80  LOCATE #4,41-x,y
90  PRINT#4,CHR$(it%);
100 NEXT x,y
110 LOCATE 1,1
120 GOTO 120
```

Up the beanstalk!



Type in this adventure based on a well known fairy story . The author is well known in many computer journals as a writer of interesting programs: we're delighted he's now also writing for CPC464 User.

Steve Lucas came a close runner up in the first grand £2000 User Club competition with this excellent adventure. Apart from its own playability, the progam listing will give all you adventure writers an insight into how it's done.

The excellent program commentary is an object lesson to all you lot who have us scratching our heads trying to work our what's where, and who's who in some of the more inscrutable offerings that grace these pages.

The Plot!

My name is Jack, and I live with my mother in a small house. We are very poor and my mother is always telling me off for being lazy. 'Get a job', she says, but with the high rate of unemployment, that has proved to be very difficult.

I have heard of an evil Ogre who lives not far from here and who is reputed to have a goose that lays golden eggs, a large bag of money and a golden harp which he stole from the peasants many years ago. I have made up my mind to try and recover these treasures and take them to my mother - but I can only carry one item at a time.

Help me by giving instructions in the form of two word sentences such as GET FOOD, or single letters such as N,S,E,W,U,D to move north, south. east, west, up and down.

Words understood include:

N, S, W, E, UP, DOWN, IN, OUT, EAT, DRINK, SAVE, LOAD, HELP, GET, TAKE, GRAB, DROP, LEAVE, PUT, KILL, STAB, SCORE, INVENTORY, RUB, SWIM, UNLOCK, OPEN, SOW, PLANT, GIVE, HIDE, CLIMB, CHOP, CUT, SEARCH.

We'll publish the solution next time (if enough of you ask). Meantime, the first correct answer we receive gets a box of worthless beans.....

Analysis:

Lines	
10-120	titles and instructions
130-170	read data
180-440	data for game
450-470	start the game
480-820	main control loop
830-840	win game
490-510	describe location
520-590	directions
600-640	objects
650	input action
660-810	call appropriate subroutine
850-	subroutines for actions
2250-	load saved game
1370-1470	save game routine

Main variables:

AA-AZ	Flags check whether events have taken place
P%	Location
S%(x,y)	map
Q$(x)	Descriptions of locations
G$(x)	Descriptions of objects
B%(x)	Point to object's location
N$(x)	Pointer to word recognition
E%,F%,R	Flags and pointers
X,Y,H	General variables
S%	score
K	Check for word recognition
Z$	Input action
C$,D$,B$	Substring of Z$
L$	Second word of input sentence

```
10 REM ** Jack and the Beanstalk **
20 REM ** an adventure game for the AMSTRAD CPC 464 **
30 REM ** <C> Steve W. Lucas  September 1984 **
40 REM ** This adventure follows the fairytale very closely ! **
50 MODE 1:INK 0,1:INK 1,24:INK 2,20:INK 3,6:PAPER 0:PEN 1: LOCATE 9,1:PRINT"Jack
   and the Beanstalk"
60 PRINT:PRINT::PEN 2:PRINT"An adventure game for the Amstrad CPC464"
70 PRINT:PEN 3:PRINT"  <C>   Steve W. Lucas   September 1984"
80 PEN 1:PRINT:PRINT"My name is Jack and I live in a small   cottage with my
   mother. We are very poorand mother is always telling me off for being lazy"
90 PEN 3:PRINT"'Get a job. Get a job'";:PEN 1:PRINT",she says."
100 PRINT"She must be joking.......what with      unemployment the way it is!"
110 PRINT:PRINT"I have heard tell of an evil ogre who isreputed to own a goose
    that lays golden eggs, a golden harp and a bag of money  which he has stolen
    from the peasants."
120 PRINT"I have decided to try to recover this   treasure and take it to mother
    who will return it to the rightful owners"
130 DIM s%(80,4),x$(40),q$(80),g$(30),b%(30),n$(30),n%(30),v$(4)
140 FOR x=1 TO 78:READ q$(x):FOR y= 1 TO 4: READ s%(x,y):NEXT y,x
150 FOR x=1 TO 23:READ g$(x),b%(x):NEXT
160 FOR x=1 TO 27:READ n$(x),n%(x):NEXT
170 FOR x=1 TO 34:READ x$(x):NEXT
180 DATA in a small wardrobe. It is full of tattyold clothes.,0,0,2,0,in a small
    bedroom. There are no covers on the old bed.,0,4,3,1,in a small bathroom.
    There is a rusty   hole in the tin bath.,0,0,0,2
190 DATA at the top of a flight of stairs.,2,0,0,0,at the bottom of a narrow
    flight of     stairs.,0,8,0,6,in a small kitchen. There is a large     table
    covered with dirty pots.,0,7,5,0,in an empty dining room.,6,0,8,0
200 DATA in a hallway which is in need of        decorating.,5,10,9,7
210 DATA "in a lounge. There is a tatty chair  a  reading lamp and an old
    newspaper here.",0,0,0,8,in the doorway.,8,11,12,0,by a garden gate. The
    grass is knee high,10,15,0,13,in a muddy field. It looks as though it has
    recently been ploughed.,0,0,0,10
220 DATA outside a garden shed.,0,0,11,0,inside a garden shed. It's full of
    cupboards which are covered in cobwebs.,0,0,0,0,on the pavement at the side
    of a narrow road.,11,20,0,0,by some market stalls.,24,18,0,0
230 DATA outside an old market hall.,0,0,0,18,in the town square. It's very
    crowded   today.,16,0,17,20,in a hall full of men trying to sell
    animals.,0,0,0,0,on a road.
240 DATA 15,20,18,21,outside the village church.,0,0,20,22,inside a very ornate
    church. Ancient    sepulcres cover the walls.,0,23,21,0,in front of a large
    altar.,22,0,0,0
250 DATA on a piece of ground which has obviouslybeen tilled ready for sowing.
    Someone   has erected some beanpoles here.,0,16,0,0
260 DATA at the top of a large beanstalk. A road stretches out before
    me.,0,26,0,0,on a long straight road.,25,0,34,27,lost in a dark
    forest.,27,30,26,28,lost in a dark forest.,28,29,30,28,lost in a dark
    forest.
270 DATA 28,31,30,29,lost in a dark forest.,27,32,30,29,lost in a dark
    forest,29,31,32,31,lost in a dark forest.,30,32,33,31,lost in a dark forest.
    There is a       woodcutter's hut here.,0,0,0,32,on a long straight
    road.,0,36,35,26
280 DATA on a long road. A landslide has blocked the way East.,0,0,0,34,outside
    a small cottage.,34,0,0,0,inside a dimly lit cottage.,0,39,38,0,by a small
    hat stand.,0,41,0,37
290 DATA in a small kitchen. There is a wooden   door here.,37,0,0,40,by an oil
    stove.,0,0,39,0,in an empty room.,38,0,75,0,on an overgrown
    footpath.,39,43,0,0
300 DATA by a large metal gate.,42,0,46,0,on a path at the side of a mountain
    stream.,0,46,45,0,on a dusty road.,0,0,47,44,by a farm gate.,44,77,0,43,on a
    dusty road.,0,0,48,45
310 DATA at the end of the road.,0,50,49,47,by the entrance to a vast
    cavern.,0,0,0,48,by a deep moat. There's a drawbridge    but it is up at the
    moment.,48,0,0,0
320 DATA by a closet.,0,56,0,0,in a tiny closet full of ladies
    fashions,0,0,0,51,on a drawbridge.,50,0,54,0,outside an ancient
    castle.,0,0,55,53,by the gatekeeper's lodge.,0,57,0,54,inside the
    gatekeeper's lodge.,51,0,0,55
670 IF c$="sav" THEN k=1:GOSUB 1380 ELSE IF c$="qui" THEN k=1:GOSUB 1480 ELSE IF
    c$="sco" THEN k=1:PEN 3:PRINT"You have scored :- ";s%;" %":PEN 1
680 f=FRE("")
690 IF b$="fu" OR b$="pi" THEN k=1:PRINT x$(20) ELSE IF c$="rea" THEN k=1:GOSUB
    1540 ELSE IF c$="sow" OR c$="pla" THEN GOSUB 1830 ELSE IF c$="wea" THEN
    GOSUB 1910 ELSE IF c$="rem" THEN GOSUB 1960
700 IF c$="eat" THEN PRINT x$(30):k=1 ELSE IF c$="dri" THEN PRINT x$(31):k=1
    ELSE IF c$="hel" THEN GOSUB 1510 ELSE IF c$="kil" OR c$="sta" OR c$="att"
    THEN GOSUB 1860
710 IF c$="pul" THEN GOSUB 2210 ELSE IF c$="loa" THEN GOSUB 2250
720 IF (b$="n" OR d$="go n") AND s%(p%,1)<>0 THEN p%=s%(p%,1):k=1:PRINT x$(1)
730 IF (b$="s" OR d$="go s") AND s%(p%,2)<>0 THEN p%=s%(p%,2):k=1:PRINT x$(1)
740 IF (b$="e" OR d$="go e") AND s%(p%,3)<>0 THEN p%=s%(p%,3):k=1:PRINT x$(1)
750 IF (b$="w" OR d$="go w") AND s%(p%,4)<>0 THEN p%=s%(p%,4):k=1:PRINT x$(1)
760 IF c$="rub" OR c$="swi" THEN PRINT x$(34):k=1 ELSE IF c$="unl" THEN GOSUB
    1590
770 IF c$="inv" THEN GOSUB 1220 ELSE IF c$="get" OR c$="tak" OR c$="gra" THEN
    GOSUB 1000 ELSE IF c$="dro" OR c$="lea" OR c$="put" THEN GOSUB 1140
780 IF b$="u" OR d$="go u" OR c$="cli" OR c$="up" THEN GOSUB 850 ELSE IF
    c$="dow" OR d$="go d" OR b$="d" THEN GOSUB 880 ELSE IF c$="in" OR d$="go i"
    THEN GOSUB 900 ELSE IF c$="out" OR d$="go o" THEN GOSUB 960
790 IF c$="hid" THEN GOSUB 1630 ELSE IF c$="giv" THEN GOSUB 1770 ELSE IF
    c$="cho" OR c$="cut" THEN GOSUB 2110 ELSE IF c$="sea" THEN GOSUB 2170 ELSE
    IF c$="ope" THEN GOSUB 2200
800 IF (b$="n" OR b$="s" OR b$="e" OR b$="w") AND k=0 THEN k=1:PRINT"I can't go
    that way"
810 IF k=0 THEN PRINT x$(29)
820 WEND
830 CLS:GOSUB 1330
840 END
850 k=1:IF p%=5 THEN p%=4:PRINT x$(1):RETURN
860 IF p%=24 AND ah=3 THEN p%=25:PRINT x$(1):RETURN ELSE IF p%=24 THEN PRINT
    x$(33):RETURN
870 PRINT x$(32):RETURN
880 k=1:IF p%=4 THEN p%=5:PRINT x$(1):RETURN ELSE IF p%=25 THEN p%=24:PRINT
    x$(1):RETURN
890 PRINT x$(32):RETURN
900 k=1:IF p%=13 AND aa<>1 THEN PRINT x$(8):RETURN ELSE IF p%=13 THEN
    p%=14:PRINT x$(1):RETURN
910 IF p%=17 THEN p%=19:PRINT x$(1):RETURN ELSE IF p%=33 THEN p%=78:PRINT
    x$(1):RETURN ELSE IF p%=49 THEN p%=68:PRINT x$(1):RETURN
920 IF p%=51 AND ab<>1 THEN PRINT x$(23);" first!":RETURN ELSE IF p%=51 THEN
    p%=52:PRINT x$(1):RETURN
930 IF p%=55 THEN p%=56:PRINT x$(1):RETURN ELSE IF p%=57 AND ac<>1 THEN PRINT
    x$(8):RETURN ELSE IF p%=57 THEN p%=59:PRINT x$(1):RETURN
940 IF p%=36 THEN p%=37:PRINT x$(1):RETURN ELSE IF p%=42 THEN p%=39:PRINT
    x$(1):RETURN
950 IF p%=65 THEN PRINT"Please be more specific!":RETURN ELSE PRINT
    x$(34):RETURN
960 k=1:IF p%=59 THEN p%=57:PRINT x$(1):RETURN ELSE IF p%=64 OR p%=67 OR p%=66
    THEN p%=65:PRINT x$(1):RETURN
970 IF p%=52 THEN p%=51:PRINT x$(1):RETURN ELSE IF p%=68 THEN p%=49:PRINT
    x$(1):RETURN ELSE IF p%=78 THEN p%=33:PRINT x$(1):RETURN ELSE IF p%=14 THEN
    p%=13:PRINT x$(1):RETURN
980 IF p%=19 THEN p%=17:PRINT x$(1):RETURN ELSE IF p%=37 THEN p%=36:PRINT
    x$(1):RETURN ELSE IF p%=39 AND ad=0 THEN PRINT"It's closed!":RETURN ELSE IF
    p%=39 THEN p%=42:PRINT x$(1):RETURN
990 PRINT x$(34):RETURN
1000 k=1:GOSUB 1090:IF l%<>1 THEN RETURN
1010 e%=0:FOR h=1 TO 23: IF b%(h)=p% AND b%(n%(r))=p% THEN e%=1
1020 NEXT:IF e%=0 THEN PRINT"I don't see it here!":RETURN
1030 IF r=3 OR r=4 OR r=5 OR r=21 OR r=27 THEN PRINT x$(34):RETURN ELSE IF r=24
     AND ax=0 THEN PRINT"It's too fast for me!":RETURN ELSE IF r=13 OR r=14 THEN
     PRINT"It's too heavy to lift!":RETURN
1040 IF r=2 THEN ah=1 ELSE IF r=6 AND ah<2 THEN PRINT"They are ";x$(32):RETURN
     ELSE IF r=6 AND ah>2 THEN PRINT x$(34):RETURN ELSE IF r=24 THEN PRINT"You
     must be joking!":RETURN
1050 IF r=6 AND p%=24 THEN x$="The beans spurt into rapid growth and inthe
     process knock me off my feet. I havebroken my neck!":GOSUB 1290
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gatekeeper's lodge.,51,0,0,55
330 DATA by the castle gate. It's locked.,55,0,58,0,by the castle walls. They
    are too high  to climb!,0,0,0,57,in a courtyard full of
    people.,57,62,60,0,in a cellar which is full of casks of   quality
    wine.,0,0,0,59
340 DATA in a large room. The furniture is       covered in cobwebs.,0,0,62,0,in
    an enormous banqueting hall. Velvet  curtains line the walls.,59,65,63,61,in
    a small chamber. A pile of bones is  strewn in the corner.,0,0,0,62
350 DATA hiding in a dark cupboard.,0,0,0,0,in an enormous kitchen. The Ogre's
    wife is busy putting something into the largeoven.,62,0,0,0,hiding in the
    oven. It is very hot in   here !.,0,0,0,0,hiding in a copper.,0,0,0,0
360 DATA in the entrance to a gloomy cavern.,72,49,69,0,in a windy
    passage.,71,69,69,68,in a windy passage.,74,70,70,71,in a windy
    passage.,73,69,70,72,in a windy passage.,72,68,71,72,in a windy
    passage.,73,71,74,73
370 DATA in a windy passage.,76,70,74,73,by a window. The view from here is very
    spectacular.,0,0,0,41,in a secret cavern.,0,74,0,0,in a grassy
    field.,46,0,0,0,in a scruffy woodcutter's hut.,33,0,0,0
380 DATA a sharp axe,14,a cow,12,a small child,23,mother (ill in bed),2, an old
    farmer,19,"",19,a piece of paper,1,a knife,6,some cheese,9,a woodcutters
    outfit,78,a copper,65,a cupboard,65,"",65,"",65,"",65,a large key,56,a
    lady's dress,52
390 DATA a large lever,50,a sword,76,some dust,15,"",15,a glass of wine,58,an
    old lady,51,axe,1,cow,2,child,3,mother,4,farmer,5,beans,6,paper,7,code,7
400 DATA knife,8,cheese,9,woodcutters,10,outfit,10,copper,11,cupboard,12,goose,
    13,bag,14,money,14,harp,15,key,16,dress,17,lever,18,sword,19,dust,20,
    mouse,21,glass,22,wine,22,lady,23
410 DATA O.K.,No chance!,Not likely!,I see nothing special,nothing happened!,it
    reads 'Combination 10130127',Aaaggghhh!,It's locked!,It's a combination
    lock!,I need the axe,I bleed to death
420 DATA I climb up,I climb down,I need the key!,hide somewhere!,she says,FEE
    FIE FOE FUM I smell the blood of ....,It's dark,I wouldn't recommend it!,HOW
    DARE YOU SPEAK TO ME LIKE THAT ?
430 DATA Don't be cruel,That's not the correct approach!,She wants
    something!,It's full of money,I fell and broke my neck!,I am dead !,Would
    you like another game ?,I don't have a clue!,I'm sorry I don't understand
    you!,I'm not hungry
440 DATA I'm not thirsty!,Not here!,Not Yet!,Don't be stupid!
450 PEN 3:PRINT:PRINT"  Press <Space Bar> to start the game."
460 aa$=INKEY$:IF aa$<>" " THEN 460
470 pp$="10130127":CLS:p%=2
480 WHILE s%<100
490 PEN 1:PRINT:PRINT"I am :-":PEN 2:PRINT q$(p%):PEN 1
500 IF p%=64 THEN GOSUB 2030 ELSE IF p%=67 THEN GOSUB 2060 ELSE IF p%=66 THEN
    GOSUB 1720 ELSE IF p%=65 AND af=1 THEN PRINT"BE QUIET.The Ogre is asleep in
    a chair!"
510 IF p%=24 AND ah=3 THEN PRINT"There is a giant beanstalk here!" ELSE IF p%=15
    AND ax=1 THEN GOSUB 2240 ELSE IF p%=62 THEN GOSUB 1990  ELSE IF as>0 THEN
    GOSUB 2090
520 a$="":IF s%(p%,1)>0 THEN a$="North"
530 IF s%(p%,2)>0 AND LEN(a$)>0 THEN a$=a$+",South" ELSE IF s%(p%,2)>0 THEN
    a$="South"
540 IF s%(p%,3)>0 AND LEN(a$)>0 THEN a$=a$+",East" ELSE IF s%(p%,3)>0 THEN
    a$="East"
550 IF s%(p%,4)>0 AND LEN(a$)>0 THEN a$=a$+",West" ELSE IF s%(p%,4)>0 THEN
    a$="West"
560 IF p%=4 OR p%=25 THEN a$=a$+",Down" ELSE IF p%=5 THEN a$=a$+",Up" ELSE IF
    p%=14 OR p%=19 OR p%=52 OR p%=66 OR p%=67 OR p%=64 OR p%=78 THEN a$=" Out"
570 IF p%=33 OR p%=51 OR p%=55 OR p%=13 OR p%=17 OR p%=36 THEN a$=a$+",In" ELSE
    IF p%=37 THEN a$=a$+",Out"
580 IF a$="" THEN a$="There must be somewhere!"
590 PRINT:PRINT"I can go:-":PEN 2:PRINT a$:PEN 1
600 e=0:FOR t=1 TO 23:pp%=0:IF b%(t)=p% THEN pp%=1
610 IF pp%=1 THEN 630
620 NEXT:GOTO 650
630 IF e=0 THEN PRINT:PRINT"I can see :-":PEN 2
640 PRINT g$(t):e=e+1:GOTO 620
650 PRINT:PRINT"What do I do now ":PEN 2:INPUT
    z$:z$=LOWER$(z$):b$=LEFT$(z$,2):c$=LEFT$(z$,3):d$=LEFT$(z$,4)
660 PEN 1:CLS:PRINT CHR$(7):k=0:IF c$="loo" THEN k=1:PRINT x$(1)
1060 e%=0:FOR d=1 TO 4:IF v$(d)="" THEN v$(d)=g$(n%(r)):e%=1:d=6
1070 NEXT:IF e%=0 THEN PRINT"My hands are full.. So sorry!":RETURN
1080 b%(n%(r))=0:RETURN
1090 l$="":FOR h=1 TO LEN(z$)
1100 IF MID$(z$,h,1)=" " THEN l$=RIGHT$(z$,(LEN(z$)-h)):h=80
1110 NEXT:r=0:l%=0:IF LEN(l$)<2 THEN RETURN
1120 FOR h=1 TO 27:IF LEFT$(n$(h),LEN(l$))=l$ THEN l%=1:r=h
1130 NEXT:RETURN
1140 k=1:GOSUB 1090:IF l%<>1 THEN PRINT"I don't see a ";l$:RETURN
1150 e%=0:FOR d=1 TO 4:IF v$(d)=g$(n%(r)) THEN v$(d)="":e%=1
1160 NEXT:IF e%<>1 THEN PRINT"I haven't got it!":RETURN
1170 b%(n%(r))=p%:IF r=2 THEN ah=0 ELSE IF r=6 AND p%=24 THEN GOSUB 1830
1180 IF p%=2 AND r=15 THEN PRINT"Mother is delighted with this gift and  orders
     me to climb the beanstalk again.":ak=1:s%=s%+10:af=7:b%(13)=-1
1190 IF (r=16 OR r=17) AND p%=2 THEN s%=s%+10:PRINT"Mother is so pleased with me
     and begs  me to go back just one more time!":ak=2:af=3:b%(14)=-1
1200 IF r=18 AND p%=2 THEN PRINT"Mother is so pleased with me...but I'd  better
     be quick!":ak=3:s%=80:b%(15)=-1
1210 RETURN
1220 k=1:PEN 3:PRINT"I am carrying :-":PEN 2:f%=0:FOR h=1 TO 4
1230 IF v$(h)<>"" THEN PRINT v$(h):f%=1
1240 NEXT:IF ai=1 THEN PRINT"I'm in disguise as the woodcutter!"
1250 IF aj=1 THEN PRINT"I'm in disguise as an old lady!"
1260 IF f%=0 THEN PRINT"Nothing at all"
1270 PRINT:RETURN
1280 REM ** lose game **
1290 CLS:k=1:PEN 3: LOCATE 1,1:PRINT x$::LOCATE 1,5:PEN 1:PRINT"So Sorry... You
     have just been killed."
1300 LOCATE 1,20:PEN 2:PRINT x$(27);" <Y/N>"
1310 aa$=INKEY$:aa$=LOWER$(aa$):IF aa$="y" THEN RUN ELSE IF aa$<>"n" THEN 1310
1320 CLS:PEN 1:LOCATE 5,15:PRINT"Goodbye. Thank you for playing":END
1330 PEN 3: LOCATE 1,2:PRINT"Well done. You have completely solved   this
     adventure."
1340 PRINT:PRINT:PEN 2:PRINT"You have found all the treasure and     killed the
     Ogre!"
1350 PEN 1:PRINT:PRINT:PRINT"Goodbye.      Thank you for playing"
1360 END
1370 REM ** save game **
1380 CLS:PRINT:PRINT"Please insert tape now":LOCATE 4,15:PRINT"Press the <Space
     Bar> when ready"
1390 dd$=INKEY$:IF dd$<>" " THEN 1390
1400 PRINT:PRINT:PRINT"Ready to save Data file now"
1410 OPENOUT("data")
1420 FOR x=1 TO 78:PRINT#9,q$(x):NEXT x
1430 FOR x=1 TO 78:FOR y=1 TO 4:PRINT#9,s%(x,y):NEXT y,x
1440 FOR x=1 TO 23:PRINT#9,g$(x):NEXT x: FOR x=1 TO 23:PRINT #9,b%(x):NEXT x:FOR
     x=1 TO 27:PRINT#9,n$(x):NEXT x:FOR x=1 TO 27: PRINT #9,n%(x):NEXT x
1450 FOR x=1 TO 34: PRINT#9,x$(x):NEXT x:FOR x=1 TO 4:PRINT#9,v$(x):NEXT x
1460 PRINT#9,aa,ab,ac,ad,ae,af,ag,ah,ai,aj,ak,al,am,an,ao,ap,aq,ar,as,
     at,au,av,aw,ax, ay,az,s%,p%
1470 CLOSEOUT:CLS:RETURN
1480 CLS:PRINT"Would you like to save the game <Y/N>?"
1490 dd$=INKEY$:dd$=LOWER$(dd$):IF dd$="y" THEN GOSUB 1380 ELSE IF dd$<>"n" THEN
     1490
1500 LOCATE 3,20:PRINT"Goodbye. Thank you for playing !":END
1510 k=1:IF p%=65 THEN PRINT"I'd hide somewhere quickly!":RETURN ELSE IF p%=51
     THEN PRINT"She might let me in if I'm kind":PEN 3:PRINT"'Please help me.
     I'm plagued with mice'":PEN 1:PRINT"she says.":RETURN
1520 IF p%=49 THEN PRINT"Why not go In ?":RETURN ELSE IF p%=78 THEN PRINT"I bet
     that would be a good disguise!":RETURN
1530 IF p%=36 THEN PRINT"Be brave..!":RETURN ELSE IF p%=57 THEN PRINT"You need a
     key!":RETURN  ELSE IF p%=13 THEN PRINT"Can you remember the
     combination?":RETURN ELSE PRINT x$(28):RETURN
1540 IF p%=9 THEN PRINT"What a boring paper. No page 3 !":RETURN ELSE u%=7:GOSUB
     1570
1550 IF e%=0 THEN PRINT"I haven't got anything worth reading!":RETURN
1560 PRINT x$(6):RETURN
1570 e%=0:FOR x%=1 TO 4:IF v$(x%)=g$(u%) THEN e%=1
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1580 NEXT:RETURN
1590 k=1:IF p%=13 THEN GOSUB 1600:RETURN ELSE IF p%=57 THEN GOSUB 1620:RETURN
     ELSE PRINT x$(34):RETURN
1600 CLS:PRINT x$(9):PEN 2:PRINT:PRINT"What's the combination ";:INPUT z$:IF
     z$=pp$ THEN PRINT x$(1):s%(13,4)=14:aa=1:PRINT"The lock opens!":s%=s%+5
     ELSE PRINT"The wrong combination!"
1610 RETURN
1620 u%=16:GOSUB 1570: IF e%=0 THEN PRINT x$(14):RETURN ELSE PRINT
     x$(1):s%(57,2)=59:q$(57)=LEFT$(q$(57),19):RETURN
1630 k=1:IF p%<>65 THEN PRINT x$(32):RETURN ELSE PEN 3:INPUT"Where should I hide
     ";z$:z$=LOWER$(z$):z$=LEFT$(z$,3)
1640 IF z$="cup" OR z$="cop" OR z$=n$(14) OR LEFT$(z$,3)="ove" THEN GOSUB 1660
     ELSE PRINT x$(29):RETURN
1650 RETURN
1660 IF ae=0 AND LEFT$(z$,3)="ove" THEN ae=1:p%=66:PRINT x$(1):RETURN ELSE IF
     LEFT$(z$,3)="ove" THEN x$="The Ogre sneaks up behind me and eats me":GOSUB
     1290
1670 IF ak<1 THEN PRINT x$(33):PRINT:PRINT"I must take my treasure back to
     mother  first!":RETURN
1680 IF ae=1 AND z$="cup" THEN PRINT x$(1):ae=2:p%=64:s%=s%+5:ax=1:RETURN ELSE
     IF z$=n$(14) THEN x$="The Ogre catches me and throws me to
     thesnakes!":GOSUB 1290
1690 IF ak<2 THEN PRINT x$(33):PRINT:PRINT"I must take my treasure back to
     mother  first!":RETURN
1700 IF ae=2 AND z$="cop" THEN PRINT x$(1):p%=67:ae=3:s%=s%+5:RETURN ELSE IF
     z$=n$(13) THEN x$="'FEE FIE FOE FUM' says the Ogre as he   grabs me from
     behind and casts me to therats":GOSUB 1290
1710 PRINT x$(19):RETURN
1720 PRINT"I hear the Ogre come in and say :-":PEN 3:PRINT"'Fee Fie Foe Fum...I
     smell the blood of an Englishman'":PEN 1:PRINT"He keeps on talking to
     something...      I hear the word 'LAY' over again!":g$(13)="a goose that
     lays golden eggs"
1730 PEN 2:PRINT:PRINT"What should I do ";:INPUT z$:z$=LOWER$(z$)
1740 IF LEFT$(z$,3)="out" OR LEFT$(z$,4)="go o" AND af<>1 THEN x$="He grabs hold
     of me":GOSUB 1290 ELSE IF LEFT$(z$,3)="wai" THEN GOSUB 1760:PRINT"The Ogre
     falls asleep in a chair":s%=s%+5:RETURN
1750 IF LEFT$(z$,3)="out" OR LEFT$(z$,4)="go o" THEN p%=65:RETURN ELSE PRINT
     x$(29):GOTO 1730
1760 af=1:PRINT x$(1):FOR x=1 TO 1000:NEXT x:RETURN
1770 k=1:GOSUB 1090:IF p%=19 AND r=2 AND ah<>1 THEN PRINT x$(33):RETURN
1780 IF p%=19 AND r=2 THEN PRINT"He is very grateful and drops
     something":g$(6)="Some strange looking beans":s%=s%+5:ah=2:FOR a=1 TO 4:IF
     v$(a)=g$(2) THEN v$(a)=""
1790 IF p%=19 AND r=2 THEN NEXT a:RETURN
1800 IF p%=51 AND r=10 THEN u%=9:GOSUB 1570:IF e%<>1 THEN PRINT"I don't have
     any!":RETURN
1810 IF p%=51 AND r=10 THEN ab=1:PRINT x$(1):PRINT:PEN 3:PRINT"'Help yourself',
     she says and pushes me into the closet.":PEN 1:p%=52:RETURN
1820 PRINT"I can't do that here!":RETURN
1830 k=1:IF p%<>24 THEN PRINT x$(32):RETURN
1840 IF ah<2 THEN PRINT"I need some seeds to sow!":RETURN ELSE PEN 3:PRINT"A
     giant Beanstalk spurts into rapid     growth!":ah=3:s%=s%+5
1850 RETURN
1860 k=1:IF p%=51 THEN g$(23)="a poor DEAD little old lady!":PRINT"She died of
     fright...you cruel and      heartless creature"
1870 IF p%=15 AND ax=0 THEN PRINT x$(1):g$(21)="a dead mouse"
1880 IF p%=15 AND ax=1 THEN u%=19:GOSUB 1570:IF e%=0 THEN PRINT"I don't have a
     sword!" ELSE IF p%=15 AND ax=1 THEN PRINT x$(1):ax=2:g$(21)="An evil old
     DEAD witch":s%(15,1)=11
1890 IF p%=65 THEN x$="The Ogre's wife cries out and HE hears":GOSUB 1290 ELSE
     IF p%=19 THEN PRINT x$(34) ELSE IF p%=23 THEN PRINT"I'm not that
     heartless!" ELSE IF p%=2 THEN PRINT"What a silly suggestion. She is my
     mother you know!"
1900 RETURN
1910 k=1:GOSUB 1090: IF (r=11 OR r=12) THEN u%=10:GOSUB 1570: IF e%<>1 THEN
     PRINT x$(34):RETURN
1920 IF (r=11 OR r=12) AND aj<>1 THEN ai=1:PRINT x$(1):RETURN ELSE IF (r=11 OR
     r=12) THEN PRINT"I'm already in disguise!":RETURN
1930 IF r=20 THEN u%=17:GOSUB 1570: IF e%<>1 THEN PRINT x$(34):RETURN
1940 IF r=20 AND ai<>1 THEN aj=1:PRINT x$(1):RETURN ELSE IF r=20 THEN PRINT"I'm
     already in disguise!":RETURN
1950 PRINT"I can't do that at the moment!":RETURN
1960 k=1:IF ai=1 THEN ai=0:PRINT x$(1):RETURN
1970 IF aj=1 THEN aj=0:PRINT x$(1):RETURN
1980 PRINT x$(34):RETURN
1990 IF ak=0 THEN RETURN ELSE IF ak=1 AND ai<>1 THEN x$="The Ogre's wife rushes
     over and says    I'll not have you in here again!":GOSUB 1290
2000 IF ak=1 THEN PRINT"The Ogre's wife greats me saying        'Hello Mr.
     Woodcutter. Come in!":RETURN
2010 IF ak=2 AND aj<>1 THEN x$="The Ogre rushes out and says 'My wife   told me
     about you!'":GOSUB 1290
2020 PRINT"The Ogre's wife invites me in!":RETURN
2030 PEN 3:PRINT"What do I do now ";:INPUT z$:z$=LOWER$(z$):IF
     LEFT$(z$,3)<>"wai" THEN x$="The Ogre opens the door and catches me":GOSUB
     1290
2040 GOSUB 1760:PRINT"I hear the Ogre come in and sit in his  chair. A few
     minutes later I hear        snoring!"
2050 g$(14)="a large bag of money":RETURN
2060 PEN 3:PRINT:PRINT"What do I do now ";:INPUT z$:z$=LOWER$(z$):IF
     LEFT$(z$,3)<>"wai" THEN x$=x$(17)+CHR$(10)+"The Ogre comes in and finds
     me!":GOSUB 1290
2070 GOSUB 1760:PRINT"The Ogre comes in with a golden harp.":PEN 3:PRINT"He says
     'PLAY HARP PLAY' and the harp   plays a gentle tune. The Ogre falls
     asleep!":af=1
2080 g$(15)="a golden harp":as=50:RETURN
2090 IF as<2 THEN x$="The evil Ogre climbs down the beanstalk and kills everyone
     (including mother!)":GOSUB 1290
2100 as=as-1:PEN 3:PRINT"I have only ";AS;" moves before ":PRINT"the Ogre comes
     down!":PEN 1:RETURN
2110 u%=1:GOSUB 1570: k=1:IF e%<>1 THEN PRINT x$(10):RETURN
2120 IF p%<>24 THEN PRINT x$(22):RETURN
2130 IF ah<>3 THEN PRINT x$(33):RETURN
2140 IF s%<80 THEN PRINT"I must not do that just yet!":RETURN
2150 PRINT"The beanstalk falls to the ground. The  Evil Ogre tumbles down and
     breaks his   neck": GOSUB 1340
2160 RETURN
2170 k=1:IF p%<>15 THEN PRINT x$(4):RETURN
2180 IF at=0 THEN PRINT"Something moved!!":g$(21)="A big fat mouse!":at=1 ELSE
     PRINT x$(4)
2190 RETURN
2200 k=1:IF p%=39 THEN PRINT x$(1):s%(39,2)=42:PRINT"The door is now
     open":RETURN ELSE PRINT x$(32):RETURN
2210 k=1:GOSUB 1090:IF p%<>50 THEN PRINT x$(22):RETURN
2220 IF av<1 THEN PRINT x$(1):PRINT"Something
     happened!":s%(50,2)=53:av=1:q$(50)="by a drawbridge. It is down."
2230 RETURN
2240 g$(21)="An evil witch who blocks the
     path!":n$(24)="witch":s%(15,1)=0:RETURN
2250 k=1:CLS:PRINT:PRINT"Please insert tape now":LOCATE 4,15:PRINT"Press the
     <Space Bar> when ready"
2260 dd$=INKEY$:IF dd$<>" " THEN 2260
2270 PRINT:PRINT:PRINT"Ready to load Data file now"
2280 OPENIN("data")
2290 FOR x=1 TO 78:INPUT#9,q$(x):NEXT x
2300 FOR x=1 TO 78:FOR y=1 TO 4:INPUT#9,s%(x,y):NEXT y,x
2310 FOR x=1 TO 23:INPUT#9,g$(x):NEXT x: FOR x=1 TO 23:INPUT #9,b%(x):NEXT x:FOR
     x=1 TO 27:INPUT#9,n$(x):NEXT x:FOR x=1 TO 27: INPUT#9,n%(x):NEXT x
2320 FOR x=1 TO 34:INPUT#9,x$(x):NEXT:FOR x=1 TO 4:INPUT#9,v$(x):NEXT x
2330 INPUT#9,aa,ab,ac,ad,ae,af,ag,ah,ai,aj,ak,al,am,an,ao,ap,aq,
     ar,as,at,au,av,aw,ax, ay,az,s%,p%
2340 CLOSEIN:CLS:RETURN
```

Scheduler

James Marshallsea

We are very mindful of the number of commercial users of the CPC464 system. A good number have chosen the CPC464 as it can span home and business applications more readily than most of the alternatives. Many such users have the machine at home to develop their programming skills and write their own applications, so here's a very interesting application from one of our first competition entrants that puts work study efficiency theory into practice.

The specific application may not be exactly tuned to your requirements, but you may well be able to tailor the format to suit a wide variety of planning applications in commercial (and private) situations.

This program is for use in workstudy/production control. Being implemented on a micro, it should be applicable to the practically minded manager who would normally be intimidated by trying to get to grips with a large company computer terminal.

The program will provide an efficient method for determining a sequence for processing a set of jobs, or maybe a customer, either of which will place demands on organisational resources. Under certain conditions the problem will be solved, or at least an optimum solution will be found.

Sequencing

Sequencing is the order in which jobs are placed for processing. Sequencing jobs involves the ordering of jobs through one or more processes, so that specific performances, (optimum performances), such as minimal idle time, total machine time, and time delivery dates are reached, variations of which can produce significant results in costs and productivity.

The sequential ordering of the start and finish of jobs is called a schedule. This schedule is only formed when the processing sequence has been established, noting that a job does not start until the previous job has finished. The machines provide the process by which the jobs are completed, and machines need not be mechanical, they could be human, (visual quality check, and so on). It is also important to note that all jobs must go through the same process.

The process time is the amount of time that a machine will need to complete that process, the times for these processes are then collected. These times are then manipulated to obtain the configuration requiring the least amount of processing time: maximum efficiency. Assuming that the least amount of processing time is the result required!

Total facility processing time is the total machine time plus the machine idle time. Therefore reducing the total facility processing time also reduces the machine idle time.

The method used to solve this problem was developed by S.A. Johnson and later extended by W.A. Stark, (number of jobs - 1 method). These two algorithms are used in the program to obtain the results.

The Johnson algorithm finds the shortest processing time for two machines, the Stark algorithm is then used to get the shortest processing time from the total number of jobs. By using the Johnson algorithm on the first two times and the last two times, another sequence is obtained. Stark's algorithm is repeatedly applied to the Johnson algorithm, (1 to number jobs-1).

This procedure will develop several sequences, allowing some discretion as to the best sequence for one's purposes, considering that holidays and maintenance must be accounted for.

The program itself

The program will ask for the number of jobs you have to process, say 4 cars for a service at a garage - or four items for assembly into a final product.

Then the program asks for the number of operations: the example garage operations are: service, oil change, wash/clean, polish [Really? You must let me have the name of your garage: ed]

The assembly operations are:

Assemble and cable into roverpoint, seal roverpoint, attach plug and test. Next enter a brief description of the operations, service, oil change, wash/clean and polish. Now enter the job name: for the garage it might be a CORTINA.

Then enter the times the cortina has to spend in each operation.

The computer then asks for the units of time you are using.

The computer now presents a summary of the data input, together with the finish times. Another prompt invites you to proceed to check times for the initial sequence.

Next comes the schedule itself, and you can list all the options, or select only the best ones.

Having decided how you want to view the results, the program goes through its paces to list the best results for you to examine, and then finally to determine the recommended schedule, sequence and the time involved.

Please note the following listing has been compressed to 40 columns. DO NOT terminate line ends with [ENTER] unless the next line on this listing starts with a valid line number! (Follow the sequence incrementing in 10's)

```
100 MODE 2:INK 1,0:INK 0,13:BORDER 13
110 DIM m(20,20),j$(20),m$(20),a(20)
120 DIM b(20),c(20),seq(20,20),PASS(20)
130 DIM mt(20),t1(20,20),t2(20,20)
140 DIM it(20),kl(20)
150 GOTO 410
160 FOR I=1 TO 500:NEXT I
170 PRINT,,,,"PRESS ANY KEY FOR MORE"
180 IF INKEY$="" THEN 180
190 RETURN
200 REM *** CALCULATE IN/OUT SCHEDULE
210 t1(1,1)=0
220 FOR I=1 TO nm
230 t2(1,I)=t1(1,I)+m(c(1),I)
240 IF I= nm THEN 260
250 t1(1,I+1)=T2(1,I)
260 NEXT I
270 TI=T2(1,1)
280 FOR J=2 TO NJ
290 T1(J,1)=T2(J-1,1)
300 T2(J,1)=T1(J,1)+M(C(J),1)
310 NEXT J
320 REM
330 FOR J=2 TO NJ
340 FOR I=2 TO NM
350 T1(J,I)=T2(J,I-1)
360 IF T2(J-1,I)>T2(J,I-1) THEN
    T1(J,I)=T2(J-1,I)
370 T2(J,I)=T1(J,I)+M(C(J),I)
380 NEXT I
390 NEXT J
400 RETURN
410 CLS:PRINT:PRINT
420 SPEED INK 20,20
430 INK 2,0,13
440 MODE 1:INK 1,0:INK 0,13:BORDER
    13:PAPER 0:PEN 1
450 PRINT "M-MACHINE SCHEDULING"
460 PRINT:PEN 2
470 PRINT TAB(6)"by J.P.MARSHALLSEA":PEN
    1:PRINT
480 PRINT:PRINT"THE PROGRAM CAN BE USED
FOR UP TO 20"
490 PRINT "JOBS AND 20 MACHINE
    OPERATIONS.":PRINT
500 PEN 3:PRINT,"NOTE"
510 PRINT STRING$(40,45)
520 PRINT ,"COMPLETE ALL DATA ENTRIES
    BY"
530 PRINT ,"HITTING THE RETURN KEY"
540 PRINT STRING$(40,45)
550 PEN 1
560 GOSUB 160
570 MODE 2:INK 1,0:INK 0,13:BORDER 13
    :CLS
580 DISPLAY=0
590 INPUT "Type in the number of jobs
    ";NJ
600 PRINT
610 INPUT "Type in the number of machine
    operations";NM
620 CLS
630 PRINT "Begin by describing the
    machine operations."
640 PRINT "These operations are assumed
    to be sequential."
650 PRINT
660 FOR I=1 TO nm
670 PRINT:PRINT
680 PRINT "Type a description of machine
    operation";I
690 PRINT "(use up to 7 characters)."
700 INPUT m$(I)
710 IF LEN(m$(I))<=7 THEN 750
720 PRINT
730 PRINT"Use only 7 characters please"
740 PRINT:GOTO 680
750 NEXT I
760 CLS
770 PRINT "Now briefly,(6 characters or
    less) describe each job,and the"
780 PRINT "time in each machine
    operation for that job."
790 PRINT
800 FOR J=1 TO NJ
810 PRINT "Type a description of job ";j
820 INPUT j$(j)
830 PRINT
840 PRINT "For this job,enter the time
    (to the nearest tenth unit) required"
850 PRINT "for each of the machine
    operations listed below."
860 PRINT
870 PRINT "(Use the same time units for
    all operations.)"
880 PRINT
890 FOR I=1 TO nm
900 PRINT "Time in operation ";m$(I);" =
    ";
910 INPUT M(J,I)
920 PRINT
930 NEXT I
940 CLS
950 NEXT j
960 REM
970 PRINT "Input complete"
980 PRINT
990 PRINT "Type in the units of time,
    (E.G.,Minutes,Hours,ETC.)"
1000 INPUT UNIT$
1010 ns=1
1020 nf=ns+3
1030 IF nf>nm THEN nf=nm
1040 CLS
1050 IF ns=1 GOTO 1080
1060 PRINT, ,"MACHINE OPERATIONS (CONT."
1070 GOTO 1090
1080 PRINT ,,"MACHINE OPERATIONS"
1090 PRINT ,,STRING$(18,45);
1100 PRINT,"(TIMES IN ";UNIT$;")"
1110 PRINT ,"JOB";,;
1120 FOR I=ns TO nf
1130 PRINT m$(I);,;
1140 NEXT I
1150 PRINT STRING$(80,45)
1160 FOR j=1 TO nj
1170 PRINT J;".";,;j$(j);,;
1180 FOR I=ns TO nf
1190 PRINT M(J,I); ,;
1200 NEXT I
1210 PRINT
1220 NEXT j
1230 PRINT:PRINT"Do you wish to change
     any of the data"
1240 a$=INKEY$:IF a$="" THEN 1240
1250 IF a$="Y" THEN GOSUB 2730 :GOTO
     1040
1260 IF a$<>"N" THEN 1240
1270 PRINT "Do you wish to re-arrange
     your schedule."
```

```
1280 A$=INKEY$:IF A$="" THEN 1280
1290 IF A$="Y" THEN GOSUB 3820 :GOTO
1010
1300 IF A$<>"N" THEN 1280
1310 IF NF=NM THEN 1330
1320 NS=NF+1:GOTO 1020
1330 FOR j=1 TO nj:c(j)=j:NEXT j
1340 GOSUB 2990
1350 GOSUB 200
1360 CLS
1370 PRINT: PRINT"INITIAL SEQUENCE"
1380 PRINT:PRINT"ORDER          JOB NAME
     F/TIME"
1390 PRINT
1400 FOR j=1 TO nj
1410 PRINT j;,;j$(j);,;t2(j,nm)
1420 NEXT j
1430 GOSUB 160
1440 kk=0
1450 GOSUB 3090
1460 LET bt=nm*t2(nj,nm)
1470 display=0
1480 flag=1
1490 GOSUB 3390
1500 GOSUB 160
1510 IF nm=2 THEN GOTO 1600
1520 PRINT "To veiw all loading
     sequences as they are determined,"
1530 PRINT "type an <A>,to view only the
best schedule(s),"
1540 PRINT "type a <B>."
1550 PRINT "You may return later to
     review all schedules."
1560 PRINT:PRINT"A or B"
1570 A$=INKEY$:IF A$="" THEN 1570
1580 IF A$="B" THEN display=1:GOTO 1600
1590 IF A$<>"A" THEN GOTO 1570
1600 FOR KK=1 TO nm-1
1610 rpt=0
1620 GOSUB 1950
1630 GOSUB 2070
1640  IF rpt<> 1 THEN GOSUB 2560
1650 GOSUB 200
1660 IF flag=0 THEN 1700
1670 IF NM <>2 THEN 1680
1680 GOSUB 2420
1690 GOSUB 3090
1700 GOSUB 3390
1710 IF flag=0 THEN 1740
1720 GOSUB 160
1730 IF rpt=1 THEN GOTO 1870
1740 NEXT kk
1750 IF nm=2 THEN 1870
1760 GOSUB 3640
1770 FOR LL=0 TO lm
1780 kk=kl(ll)
1790 display=0
1800 CLS
1810 PRINT "A good job sequence is:"
1820 PRINT
1830 PRINT "ORDER          JOB NAME
     F/TIME"
1840 IF nm=2 THEN RETURN
1850 LET rpt=1:GOTO 1620
1860 NEXT ll
1870 GOSUB 2840
1880 ON FLAG GOTO 1910,1930
1890 PRINT:PRINT "THEN GOODBYE!":PRINT
1900 GOTO 1940
1910 flag=0:CLS
1920 GOTO 1010
1930 GOTO 580
1940 END
1950 REM **** COMBINE DATA FOR J&J ****
1960 FOR j=1 TO nj
1970 a(j)=0:b(j)=0
1980 NEXT j
1990 FOR I=1 TO kk
2000 FOR j=1 TO nj
2010 a(J)=a(J)+M(J,I)
2020 b(j)=b(J)+m(j,nm-I+1)
2030 NEXT j
2040 NEXT I
2050 RETURN
2060 REM **** J&J ALGORITHM ****
2070 nf=0:nl=NJ:l=0
2080 GOSUB 2360
2090 FOR j=1 TO nj
2100 c(j)=nj+1
2110 NEXT j
2120 sm=tt
2130 FOR j=1 TO nj
2140 fl=0
2150 REM **** ELIMINATE DONE JOBS ****
2160 FOR jJ=1 TO nj
2170 IF j=c(jJ) THEN fl=1
2180 NEXT jJ
2190 IF fl=1 THEN GOTO 2220
2200 IF b(j)<= sm THEN sm=b(j):il=j:l=2
2210 IF a(j)<= sm THEN sm=a(j):il=j:l=0
2220 NEXT j
2230 IF l=2 THEN GOTO 2260
2240 c(nf)=il
2250 nf=nf+1:GOTO 2280
2260 c(nl)=il
2270 nl=nl-1
2280 IF NL >= NF THEN 2120
2290 REM ***** GENERATE AN ARRAY FOR
2300 REM ***** FILTER.
2310 FOR J=1 TO NJ
2320 SEQ(KK,J)=C(J)
2330 NEXT J
2340 RETURN
2350 REM *** FIND MAXIMUM ELEMENT ***
2360 tt=A(1)
2370 FOR J=1 TO NJ
2380 tt=MAX(a(j),tt)
2390 tt=MAX(b(j),tt)
2400 NEXT J
2410 RETURN
2420 REM *** PRINT JOB SEQUENCE
2430 IF RPT=1 THEN GOTO 2500
2440 CLS
2450 IF NM<>2 THEN GOTO 2470
2460 PRINT "AN OPTIMAL SEQUENCE
IS:":GOTO 2480
2470 PRINT "A POSSIBLE SEQUENCE IS:"
2480 PRINT
2490 PRINT"ORDER          NAME
     F/TIME"
2500 FOR j=1 TO nj
2510 PRINT j;,;j$(c(J));,;t2(j,nm)
2520 NEXT j
2530 GOSUB 160
2540 RETURN
2550 REM **** FILTER SUBROUTINE ****
2560 flag=1
2570 IF nm=2 THEN RETURN
2580 IF kk<2 THEN RETURN
2590 FOR k=1 TO kk-1
2600 IF nflag=0 THEN GOTO 2670
2610 nf=0
2620 FOR j=1 TO nj
2630 IF nf=1 THEN GOTO 2650
2640 IF c(J)<> seq(k,j) THEN nf=1
2650 NEXT j
```

```
2660 IF nf=0 THEN LET flag=0
2670 NEXT k
2680 REM *** FLAG=1 IF SEQUENCE DIFFERS
2690 REM *** FROM PREVIOUS SEQUENCE
2700 REM
2710 RETURN
2720 REM **** CORRECTIONS ****
2730 PRINT:INPUT "Enter the job number
     ";j
2740 IF j<1 OR j>nj THEN PRINT
     "ERROR-RE-ENTER PLEASE":GOTO 2730
2750 PRINT:PRINT"Now enter the new job
     description"
2760 INPUT w$
2770 IF LEN (w$) >7 THEN w$=LEFT$(w$,7)
2780 j$(j)=w$
2790 FOR I=1 TO nm
2800 PRINT "Enter the new times for
     operation ";m$(i);
2810 INPUT m(j,i)
2820 NEXT i
2830 RETURN
2840 LET FLAG=0
2850 PRINT
2860 PRINT"Do you wish to schedule more
     ?"
2870 PRINT:PRINT" Y or N"
2880 INPUT AN$
2890 IF an$="N" THEN RETURN
2900 IF an$<>"Y" THEN GOTO 2880
2910 PRINT:PRINT"Do you wish to modify
     existing data ?"
2920 PRINT" Y or N"
2930 INPUT an$
2940 IF an$="Y" THEN LET flag=1:RETURN
2950 IF an$<>"N" THEN GOTO 2930
2960 PRINT"Then a new problem is
     asssumed"
2970 flag=2
2980 RETURN
2990 REM *** CALCULATE MACHINE TIME
3000 FOR I=1 TO nm+1 :mt(I)=0:NEXT I
3010 FOR I=1 TO nm
3020 FOR j=1 TO nj
3030 mt(I)=mt(I)+m(j,I)
3040 NEXT j
3050 MT(NM+1)=MT(NM+1)+MT(I)
3060 NEXT I
3070 RETURN
3080 REM *** PRINT SCHEDULE ***
3090 IF display=1 THEN RETURN
3100 ns=1
3110 PRINT "JOB";,;
3120 IF ns=1 THEN GOTO 3150
3130 PRINT" SCHEDULING (CONT.)"
3140 GOTO 3160
3150 PRINT "SCHEDULE"
3160 PRINT STRING$(79,45)
3170 nf=ns+3
3180 IF nf>nm THEN nf=nm
3190 FOR I=ns TO nf
3200 PRINT ,;"  ";m$(I);"  ";
3210 NEXT I
3220 PRINT
3230 FOR I=ns TO nf
3240 PRINT ,;"IN       OUT ";
3250 NEXT I
3260 PRINT
3270 FOR J=1 TO NJ
3280 PRINT C(J);".";" ";
3290 FOR I=NS TO NF
3300 PRINT ,INT(T1(J,I));"
     ";INT(T2(J,I));
3310 NEXT I
3320 PRINT
3330 NEXT J
3340 IF NF=NM THEN GOTO 3360
3350 NS=NF+1:GOTO 3110
3360 GOSUB 160
3370 RETURN
3380 REM ***** IDLE TIME *****
3390 OT=NM*T2(NJ,NM)
3400 IF ot>bt THEN bt=ot
3410 IT(KK)=INT(OT)-INT(MT(NM+1))
3420 IF flag=0 THEN RETURN
3430 PRINT
3440 PRINT"  PERFORMANCE CHARACTERISTICS
     FOR";
3450 IF kk<>0 THEN GOTO 3480
3460 PRINT " INITIAL SEQUENCE"
3470 GOTO 3520
3480 IF nm<>2 THEN GOTO 3510
3490 PRINT" OPTIMAL SEQUENCE"
3500 GOTO 3520
3510 PRINT " THIS SEQUENCE"
3520 PRINT STRING$(79,45)
3530 PRINT"TOTAL FACILITY PROCESSING
     TIME ";
3540 PRINT  "= ";ROUND(OT,2);",in units
     of ";UNIT$
3550 PRINT
3560 PRINT "TOTAL MACHINE PROCESSING
     TIME ";
3570 PRINT "= ";ROUND(MT(NM+1),2);",in
     units of ";UNIT$
3580 PRINT
3590 PRINT "IDLE MACHINE TIME ";
3600 PRINT "= ";ROUND(IT(KK),2);",in
     units of ";UNIT$
3610 PRINT
3620 RETURN
3630 REM *** SHORTEST SEQUENCE ***
3640 FOR I=0 TO nm-1
3650 BT=MIN(IT(I),BT)
3660 NEXT I
3670 is=-1
3680 kk=0
3690 IF it(kk)=bt THEN is=kk
3700 IF kk>=(nm-1) THEN GOTO 3720
3710 kk=kk+1:GOTO 3690
3720 kl(0)=is
3730 l=1
3740 FOR I= 0 TO is-1
3750 IF it(I)<>bt THEN GOTO 3780
3760 kl(l)=n
3770 l=l+1
3780 NEXT I
3790 lm=l-1
3800 RETURN
3810 REM ******* ALTER SCHEDULES
     *********
3820 PRINT:PRINT "Enter the machine
     number you wish to move."
3830 PRINT "Then enter the new location
     in your schedule (X,Y)"
3840 INPUT fs,ms
3850 PAS$=M$(FS):M$(FS)=M$(MS)
     :M$(MS)=PAS$
3860 FOR I=1 TO nJ
3870 PASS(i)=m(I,fs)
3880 m(I,fs)=m(I,ms)
3890 m(I,ms)=PASS(i)
3900 NEXT i
3910 RETURN
```

■ CPC464 USER

Amthello

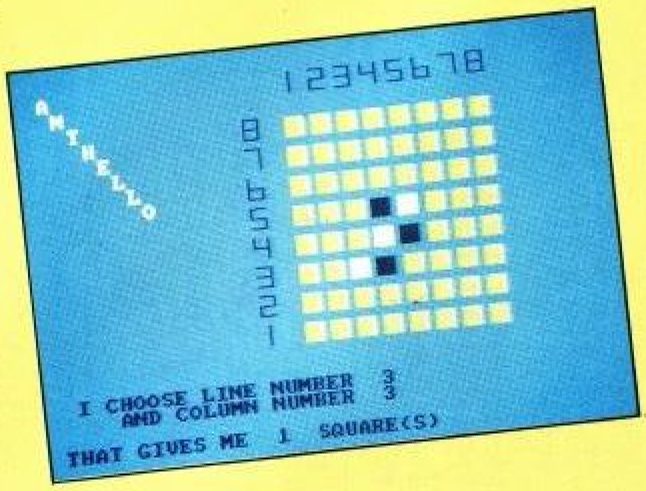
Here's another old favourite in CPC464 format. Pit your wits against the computer in this game to try and take over the board with as many pieces of your own colour as possible.

M J Gribbins of Helston, Cornwall gets the CPC464 'GOTO of the month' award for this program: which nevertheless appears to work well! What with these and the un-renumbered lines, the whole program has a friendly if somewhat evolutionary feel ......

Gameplay:

1. By skilful play you must out-manoeuvre the computer to end the game with more of your colour 'counters' on the board than those of the computer.
2. First, choose a colour, remembering that black always plays first.
3. The computer asks for the line and column numbers of the square you wish to select.
4. The validity of the move is checked.
5. On every move, a selection must be placed next to an opponent's square: either sideways, lengthways or diagonally. This selection must trap at least one of an opponent's 'counters' between the one just positioned, and one already on the board.
6. The number of squares that can be captured in a single turn is unlimited, and you can build up quite a strategy by delaying the turn that grabs the majority of squares for your colour.
7. An opponent's square can only be captured as a direct result of a move.
8. If it is impossible to capture a square, then the computer will advise that you (or it!) must pass and allow the opponent another turn.
9. When all the squares have been covered, the computer will announce the winner.
10. In the event of deadlock, the player with most squares wins.

```
5 KEY 138,"MODE 2:INK 0,0:INK 1,11:PAPER 1:PEN 0:CLS:LIST"+CHR$(13)
10 REM *****AMTHELLO BY M.J.GRIBBINS****
11 BORDER 14
15 CLEAR
16 MODE 1:PEN 0:PAPER 1:CLS
17 INK 0,0:INK 1,14:INK 2,18:INK 3,26
18 LOCATE 2,3:PEN 3:PRINT"A":LOCATE 3,4:PRINT"M":LOCATE 4,5:PRINT"T":LOCATE
5,6:PRINT"H"
19 LOCATE 6,7:PRINT"E":LOCATE 7,8:PRINT"L":LOCATE 8,9:PRINT"L":LOCATE
9,10:PRINT"O"
20 WINDOW #1,2,39,22,25:PAPER #1,1:PEN #1,0:CLS #1
21 PEN 0
30 LOCATE #1,8,1:PRINT #1,"BLACK ALWAYS PLAYS FIRST"
33 LOCATE #1,1,3:PRINT #1,"PRESS B OR W TO CHOOSE BLACK OR WHITE"
34 B$=INKEY$:IF B$="" THEN 34
40 IF B$="W" OR  B$="w" THEN Q%=3:N%=0:GOTO 75
50 IF B$="B" OR  B$="b" THEN Q%=0:N%=3:GOTO 75
52 CLS #1:LOCATE #1,4,3
60 PRINT #1,"        BLACK OR WHITE ONLY"
65 FOR T=0 TO 1000:NEXT T
70 GOTO 34
75 DIM C%(10,10),P%(9,9),C1%(8),C2%(8),CX%(9),CY%(9)
80 I1%=2:J1%=2:I2%=7:J2%=7
82 FOR I%=0 TO 9
83 C%(I%,0%)=6:C%(0,I%)=6
84 C%(9,I%)=6:C%(I%,9)=6
85 NEXT I%
90 FOR I%=1 TO 8
95 READ C1%(I%),C2%(I%)
100 FOR J%= 1 TO 8
110 READ P%(I%,J%)
120 C%(I%,J%)=6
130 NEXT J%:NEXT I%
140 C%(4,4)=3:C%(4,5)=0:C%(5,4)=0:C%(5,5)=3
143 FOR K%=1 TO 58
144 READ AR%,BR%,CR%,DR%
145 PLOT AR%,BR%:DRAW CR%,DR%,0
146 NEXT K%
150 GOSUB 1000
160 IF Q%=3 GOTO 370
170 CLS #1:INPUT #1,"  WHICH LINE DO YOU WANT ";E%
180 IF E% <1 OR E% >8 GOTO 170
190 LOCATE #1,1,3:INPUT #1,"WHICH COLUMN DO YOU WANT ";D%
```



```
200 IF D% <1 OR D% >8 GOTO 190
210 IF C%(D%,E%)=6 GOTO 230
215 CLS #1:LOCATE #1,5,2:PRINT #1,"THAT SQUARE IS ALREADY OCCUPIED !"
218 FOR T=1 TO 1000:NEXT T
220 GOTO 170
230 PLOT 270+(30*D%),70+(30*E%):DRAW 290+(30*D%),89+(30*E%),Q%
231 PLOT 290+(30*D%),70+(30*E%):DRAW 270+(30*D%),89+(30*E%),Q%
235 GOTO 239
236 FOR M%= 0 TO 19 STEP 2:PLOT 270+(30*D%),70+M%+(30*E%)
237 DRAW 290+(30*D%),70+M%+(30*E%),6:NEXT M%
238 GOTO 170
239 VRX%=0
240 FOR K%=1 TO 8
250 VR%=0:C3%=D%:C4%=E%
260 C3%=C3%+C1%(K%):C4%=C4%+C2%(K%)
270 IF C%(C3%,C4%)=N% GOTO 275 ELSE 280
275 VR%=VR%+1:GOTO 260
280 IF C%(C3%,C4%)=6 GOTO 285 ELSE 290
285 NEXT K%:GOTO 340
290 IF VR%=0 GOTO 285 ELSE 300
300 VRX%=VRX%+VR%
310 C3%=C3%-C1%(K%):C4%=C4%-C2%(K%)
320 IF C%(C3%,C4%)=6 GOTO 285 ELSE 330
330 C%(C3%,C4%)=Q%:GOTO 310
340 IF VRX%=0 GOTO 343 ELSE 350
343 CLS #1:PRINT #1," THIS IS NOT A POSSIBLE CHOICE"
344 FOR T=1 TO 1000:NEXT T
345 GOTO 236
350 E%=E%:D%=D%:VRX%=VRX%
351 CLS #1:PRINT #1,"YOU HAVE PLAYED LINE NUMBER ";E%
352 PRINT #1,"          AND COLUMN NUMBER ";D%
353 LOCATE #1,2,4:PRINT #1,"THAT GIVES YOU ";VRX%;" SQUARES(S)"
355 C%(D%,E%)=Q%:GOSUB 2000
360 GOSUB 1000
370 CLS #1:LOCATE #1,10,2:PRINT #1,"NOW IT'S MY TURN ...!"
380 P%=0:VRX%=0:VRY%=0
381 IF I1%*J1%=1 AND I2%*J2%=64 GOTO 390
382 FOR K%=2 TO 7
383 IF C%(2,K%) <> 6 THEN I1%=1
384 IF C%(7,K%) <> 6 THEN I2%=8
385 IF C%(K%,2) <> 6 THEN J1%=1
386 IF C%(K%,7) <> 6 THEN J2%=8
387 NEXT K%
390 FOR I%=I1% TO I2%
400 FOR J%=J1% TO J2%
410 IF C%(I%,J%)=6 GOTO 450
420 NEXT J%:NEXT I%
425 IF P% > 0 GOTO 438
426 IF PAS%=1 GOTO 428 ELSE 430
428 CLS #1:PRINT #1," DEADLOCK ! I MUST PASS ALSO.GAME OVER"
429 FOR T=1 TO 1000:NEXT T:GOTO 1070
430 CLS #1:LOCATE #1,18,2:PRINT #1,"I MUST PASS"
431 GOSUB 3500
432 IF PAS%=1 GOTO 434 ELSE 437
434 CLS #1:PRINT #1,"DEADLOCK! YOU MUST PASS ALSO.GAME OVER"
435 FOR T=1 TO 1000:NEXT T:GOTO 1070
437 GOTO 170
438 IF LC%=0 THEN LC%=1:RANDOMIZE LC%:RL%=RND(LC%)
439 CX1%=CX%(RL%):CX2%=CY%(RL%)
440 GOTO 600
450 VRX%=0
460 FOR K%=1 TO 8
470 VR%=0:C3%=I%:C4%=J%
480 C3%=C3%+C1%(K%):C4%=C4%+C2%(K%)
490 IF C%(C3%,C4%)=Q% GOTO 495 ELSE 500
495 VR%=VR%+1:GOTO 480
500 IF C%(C3%,C4%)=6 GOTO 505 ELSE 510
505 NEXT K%:GOTO 525
```

```
2018 IF D%=1 OR D%=8 OR E%=1 OR E%=8 GOTO 2030
2019 IF CX1%=1 OR CX1%=8 OR CX2%=1 OR CX2%=8 GOTO 2030
2020 RETURN
2030 FOR J%=1 TO 8 STEP 7
2035 FOR I%=2 TO 7
2040 IF C%(I%,J%)=N% GOTO 2042 ELSE 2043
2042 P%(I%+1,J%)=21:P%(I%-1,J%)=21
2043 IF C%(J%,I%)=N% GOTO 2045 ELSE 2046
2045 P%(J%,I%+1)=21:P%(J%,I%-1)=21
2046 NEXT I%
2048 FOR I%=2 TO 7
2050 IF C%(I%,J%)=Q% GOTO 2052 ELSE 2055
2052 P%(I%+1,J%)=2:P%(I%-1,J%)=2
2055 IF C%(J%,I%)=Q% GOTO 2057 ELSE 2060
2057 P%(J%,I%+1)=2:P%(J%,I%-1)=2
2060 NEXT I%:NEXT J%
2065 P%(1,2)=1:P%(1,7)=1:P%(2,1)=1:P%(7,1)=1
2070 P%(2,8)=1:P%(7,8)=1:P%(8,2)=1:P%(8,7)=1
2120  FOR I%=2 TO 7
2121   IF C%(1,I%-1)=Q% AND C%(1,I%+1)=Q% THEN P%(1,I%)=25
2122   IF C%(8,I%-1)=Q% AND C%(8,I%+1)=Q% THEN P%(8,I%)=25
2123   IF C%(I%-1,1)=Q% AND C%(I%+1,1)=Q% THEN P%(I%,1)=25
2124   IF C%(I%-1,8)=Q% AND C%(I%+1,8)=Q% THEN P%(I%,8)=25
2125 NEXT I%
2200 FOR J%=1 TO 8 STEP 7
2205 FOR I%=4 TO 8
2210 IF C%(J%,I%) <> N% GOTO 2230
2215 IC%=I%-1:IF C%(J%,IC%)=6 GOTO 2230
2220 IF C%(J%,IC%)=Q% GOTO 2222 ELSE 2225
2222 IC%=IC%-1:GOTO 2220
2225 IF C%(J%,IC%)=6 GOTO 2227
2226 GOTO 2230
2227 IF IC%=0 GOTO 2230
2228 IF C%(J%,I%+1)=Q% AND C%(J%,IC%-1)=6 GOTO 2230
2229 P%(J%,IC%)=26
2230 IF C%(I%,J%) <> N% GOTO 2250
2235 IC%=I%-1:IF C%(IC%,J%)=6 GOTO 2250
2240 IF C%(IC%,J%)=Q% GOTO 2242 ELSE 2245
2242 IC%=IC%-1:GOTO 2240
2245 IF C%(IC%,J%)=6 GOTO 2247
2246 GOTO 2250
2247 IF IC%=0 GOTO 2250
2248 IF C%(I%+1,J%)=Q% AND C%(IC%-1,J%)=6 GOTO 2250
2249 P%(IC%,J%)=26
2250 NEXT I%
2255 FOR I%=1 TO 5
2260 IF C%(J%,I%) <> N% GOTO 2280
2265 IC%=I%+1:IF C%(J%,IC%)=6 GOTO 2280
2270 IF C%(J%,IC%)=Q% GOTO 2272 ELSE 2275
2272 IC%=IC%+1:GOTO 2270
2275 IF C%(J%,IC%)=6 GOTO 2277
2276 GOTO 2280
2277 IF IC%=9 GOTO 2280
2278 IF C%(J%,I%-1)=Q% AND C%(J%,IC%+1)=6 GOTO 2280
2279 P%(J%,IC%)=26
2280 IF C%(I%,J%) <> N% GOTO 2305
2285 IC%=I%+1:IF C%(IC%,J%)=6 GOTO 2305
2290 IF C%(IC%,J%)=Q% GOTO 2295 ELSE 2300
2295 IC%=IC%+1:GOTO 2290
2300 IF C%(IC%,J%)=6 GOTO 2302
2301 GOTO 2305
2302 IF IC%=9 GOTO 2305
2303 IF C%(I%-1,J%)=Q% AND C%(IC%+1,J%)=6 GOTO 2305
2304 P%(IC%,J%)=26
2305 NEXT I%:NEXT J%
2320 IF C%(1,1)=N% GOTO 2322 ELSE 2325
2322 FOR I%=2 TO 6:P%(1,I%)=20:P%(I%,1)=20:NEXT I%
2325 IF C%(1,8)=N% GOTO 2327 ELSE 2330
```

```
510 IF VR%=0% GOTO 505 ELSE 520
520 VRX%=VRX%+VR%:GOTO 505
525 IF VRX%=0 GOTO 420
530 IF P%(I%,J%) < P% GOTO 420
540 IF P%(I%,J%) > P% GOTO 545 ELSE 550
545 P%=P%(I%,J%):VRY%=VRX%:LC%=0:CX%(0)=I%:CY%(0)=J%:GOTO 420
550 IF VRY% > VRX% GOTO 420
560 IF VRY% < VRX% GOTO 562 ELSE 565
562 LC%=0:VRY%=VRX%:CX%(0)=I%:CY%(0)=J%:GOTO 420
565 LC%=LC%+1:CX%(LC%)=I%:CY%(LC%)=J%
570 GOTO 420
600 CX2%=CX2%:CX1%=CX1%:VRY%=VRY%
605 CLS #1:PRINT #1," I CHOOSE LINE NUMBER ";CX2%
606 PRINT #1,"    AND COLUMN NUMBER ";CX1%
610 LOCATE #1,1,4:PRINT #1,"THAT GIVES ME ";VRY%;" SQUARE(S)"
620 PLOT 270+(30*CX1%),70+(30*CX2%):DRAW 290+(30*CX1%),89+(30*CX2%),N%
630 PLOT 290+(30*CX1%),70+(30*CX2%):DRAW 270+(30*CX1%),89+(30*CX2%),N%
640 FOR T=1 TO 1000:NEXT T
700 FOR K%=1 TO 8
710 VR%=0:C3%=CX1%:C4%=CX2%
720 C3%=C3%+C1%(K%):C4%=C4%+C2%(K%)
730 IF C%(C3%,C4%)=Q% GOTO 735 ELSE 740
735 VR%=VR%+1:GOTO 720
740 IF C%(C3%,C4%)=6 GOTO 745 ELSE 750
745 NEXT K%:GOTO 785
750 IF VR%=0 GOTO 745
760 C3%=C3%-C1%(K%):C4%=C4%-C2%(K%)
770 IF C%(C3%,C4%)=6 GOTO 745
780 C%(C3%,C4%)=N%:GOTO 760
785 C%(CX1%,CX2%)=N%
800 GOSUB 3500
810 GOSUB 1000
820 IF PAS%=1 GOTO 825 ELSE 830
825 CLS #1:PRINT #1,"      YOU MUST PASS":FOR T=1 TO 1000:NEXT T:GOTO 370
830 GOTO 170
1000 FOR I%=1 TO 8
1005 FOR J%=1 TO 8
1010 FOR M%=0 TO 19 STEP 2
1015 Z%=270+(30*I%):H%=70+(30*J%):W%=H%+M%
1020 PLOT Z%,W%:DRAW Z%+20,W%,C%(I%,J%)
1030 NEXT M%:NEXT J%:NEXT I%
1040 X%=X%+1
1050 IF X%=61 GOTO 1070
1060 RETURN
1070 CQ%=0:CN%=0
1080 FOR I%=1 TO 8
1090 FOR J%=1 TO 8
1100 IF C%(I%,J%)=Q% THEN CQ%=CQ%+1
1110 IF C%(I%,J%)=N% THEN CN%=CN%+1
1120 NEXT J%:NEXT I%
1130 IF CQ% > CN% GOTO 1175
1140 IF CQ%=CN% GOTO 1145 ELSE 1150
1145 CLS #1:LOCATE #1,25,2:PRINT #1,"DEADLOCK"
1146 END
1150 CLS #1:LOCATE #1,5,1:PRINT #1,"YOU HAVE ";CQ%;" SQUARES;I HAVE ";CN%
1160 LOCATE #1,11,3:PRINT #1,"I HAVE WON....!!!!"
1170 END
1175 CLS #1:LOCATE #1,5,1:PRINT #1,"YOU HAVE ";CQ%;" SQUARES;I HAVE ";CN%
1180 LOCATE #1,5,3:PRINT #1,"WELL DONE. YOU HAVE WON !!"
1190 END
2000 IF C%(2,2)=Q% AND (C%(3,1)=N% OR C%(1,3)=N%) GOTO 2002 ELSE 2003
2002 P%(3,1)=1:P%(1,3)=1
2003 IF C%(7,7)=Q% AND (C%(8,6)=N% OR C%(6,8)=N%) GOTO 2005 ELSE 2006
2005 P%(8,6)=1:P%(6,8)=1
2006 IF C%(2,7)=Q% AND (C%(1,6)=N% OR C%(3,8)=N%) GOTO 2008 ELSE 2009
2008 P%(1,6)=1:P%(3,8)=1
2009 IF C%(7,2)=Q% AND (C%(6,1)=N% OR C%(8,3)=N%) GOTO 2011 ELSE 2018
2011 P%(6,1)=1:P%(8.3)=1
2327 FOR I%=2 TO 6:P%(I%,8)=20:P%(1,9-I%)=20:NEXT I%
2330 IF C%(8,1)=N% GOTO 2332 ELSE 2335
2332 FOR I%=2 TO 6:P%(9-I%,1)=20:P%(8,I%)=20:NEXT I%
2335 IF C%(8,8)=N% GOTO 2337 ELSE 2340
2337 FOR I%=3 TO 7:P%(I%,8)=20:P%(8,I%)=20:NEXT I%
2340 IF C%(1,1) <> 6 THEN P%(2,2)=5
2341 IF C%(1,8) <> 6 THEN P%(2,7)=5
2342 IF C%(8,1) <> 6 THEN P%(7,2)=5
2343 IF C%(8,8) <> 6 THEN P%(7,7)=5
2350 P%(1,1)=30:P%(1,8)=30:P%(8,1)=30:P%(8,8)=30
2360 FOR I%=3 TO 6
2365 IF C%(1,I%)=N% THEN P%(2,I%)=4
2370 IF C%(8,I%)=N% THEN P%(7,I%)=4
2375 IF C%(I%,1)=N% THEN P%(I%,2)=4
2380 IF C%(I%,8)=N% THEN P%(I%,7)=4
2385 NEXT I%
2390 IF C%(7,1)=Q% AND C%(4,1)=N% AND C%(6,1)=6 AND C%(5,1)=6 THEN P%(6,1)=26
2391 IF C%(1,7)=Q% AND C%(1,4)=N% AND C%(1,6)=6 AND C%(1,5)=6 THEN P%(1,6)=26
2392 IF C%(2,1)=Q% AND C%(5,1)=N% AND C%(3,1)=6 AND C%(4,1)=6 THEN P%(3,1)=26
2393 IF C%(1,2)=Q% AND C%(1,5)=N% AND C%(1,3)=6 AND C%(1,4)=6 THEN P%(1,3)=26
2394 IF C%(8,2)=Q% AND C%(8,5)=N% AND C%(8,3)=6 AND C%(8,4)=6 THEN P%(8,3)=26
2395 IF C%(2,8)=Q% AND C%(5,8)=N% AND C%(3,8)=6 AND C%(4,8)=6 THEN P%(3,8)=26
2396 IF C%(8,7)=Q% AND C%(8,4)=N% AND C%(8,5)=6 AND C%(8,6)=6 THEN P%(8,6)=26
2397 IF C%(7,8)=Q% AND C%(4,8)=N% AND C%(5,8)=6 AND C%(6,8)=6 THEN P%(6,8)=26
2400 RETURN
3500 PAS%=0
3510 FOR I%=1 TO 8
3520 FOR J%=1 TO 8
3530 IF C%(I%,J%)=Q% GOTO 3560
3540 NEXT J%:NEXT I%
3550 PAS%=1:RETURN
3560 FOR K%=1 TO 8
3570 VR%=0:C3%=I%:C4%=J%
3580 C3%=C3%+C1%(K%):C4%=C4%+C2%(K%)
3590 IF C3% < 1 OR C3% > 8 GOTO 3595 ELSE 3600
3595 NEXT K%:GOTO 3540
3600 IF C4% < 1 OR C4% > 8 GOTO 3595 ELSE 3610
3610 IF C%(C3%,C4%)=N% GOTO 3615 ELSE 3620
3615 VR%=VR%+1:GOTO 3580
3620 IF C%(C3%,C4%)=Q% GOTO 3595 ELSE 3630
3630 IF VR% > 0 THEN RETURN
3640 GOTO 3595
4000 DATA 1,0,30,1,20,10,10,20,1,30,1,1,1,1,3
4010 DATA 3,3,3,1,1,0,1,20,3,5,5,5,5,3,20,-1,1,10,3,5
4020 DATA 0,0,5,3,10,-1,0,10,3,5,0,0,5,3,10,-1
4030 DATA -1,20,3,5,5,5,5,3,20,0,-1,1,1,3,3,3,3,1,1,1,-1,30,1,20,10,10,20,1,30
4040 DATA 263,100,263,120,270,130,255,130,255,130,255,140,255,140,270,140
4050 DATA 270,140,270,150,270,150,255,150,255,160,270,160,270,160,270,180
4060 DATA 270,180,255,180,270,170,255,170,270,190,270,210,270,200,255,200
4070 DATA 255,200,255,210,255,220,270,220,270,220,270,230,270,230,255,230
4080 DATA 255,230,255,240,255,240,270,240,255,250,270,250,270,250,270,260
4090 DATA 270,260,255,260,255,250,255,270,270,280,270,300,270,300,255,300
4100 DATA 255,310,255,330,255,330,270,330,270,330,270,310,270,310,255,310
4110 DATA 255,320,270,320
4120 DATA 310,355,310,375,350,355,335,355,335,355,335,365,335,365,350,365
4130 DATA 350,365,350,375,350,375,335,375,365,355,380,355,380,355,380,375
4140 DATA 380,375,365,375,380,365,365,365,410,355,410,375,410,365,395,365
4150 DATA 395,365,395,375,425,355,440,355,440,355,440,365,440,365,425,365
4160 DATA 425,365,425,375,425,375,440,375,455,375,455,355,455,355,470,355
4170 DATA 470,355,470,365,470,365,455,365,485,375,500,375,500,375,500,355
4180 DATA 515,375,515,355,515,355,530,355,530,355,530,375,530,375,515,375
4190 DATA 515,365,530,365
```

Deep Thought

Jon Tarrant and Rachel Braverman submitted one of the nicest offerings in the first competition. It wasn't a megabyte of code but a very delightful example of what can be done with the efficiency of the CPC464.

The program structure itself is nice and elegant. The only complaint we had was the presence of rather a large number of 'LET' statements. Tut, tut. Refer to Chapter 8 of the user guide.

Is this evidence of an 'alien' program from another machine with a lazy BASIC? Anyway, you lot don't need to worry about typing in the LETs. We reproduce them here, since this is a computer originated listing, and we would hate to be accused of meddling.

The screen display setup and the general handling of the input are a good example for all to observe.

The Plot....

'Deep Thought' is a computer version of the traditional game 'Bulls and Cows' - of which the 'Mastermind' board game is also a derivative. (I never knew that: ed)

The computer will set a four digit code, the degree of difficulty is determined by the selected skill level. You have a maximum of 10 attempts to break the code, and are scored after each guess depending on how accurate you are. After each guess is typed in - but before the computer scores it - you have the chance to change your entry.

This is particularly useful, because it allows you to see your guess in print and compare it to your previous guesses without wasting an attempt if you then spot an obvious error.

There are three levels of play which determine the nature of the code you have to crack:

1. Code contains any four of the digits 1 to 9 inclusive. No digits are repeated at level (1).
2. As for (1), except that 0 is also used.
3. As (2) but may include any number of repeats. The hard one.

A solid spot on the 'score' shows that you have guessed both a digit and its relative position correctly. The position of the score dot has no particular relevance.

An open dot indicates you have guessed the value of a digit correctly, but it is not in the correct relative position in the display.

```
10 REM **DEEP THOUGHT by RACHEL BRAVERMAN AND JON TARRANT**
20 :
30 GOSUB 1000:REM **introductory text**
40 :
50 GOSUB 2000:REM **set up screen**
60 :
70 GOSUB 3000:REM **play game**
80 :
90  GOTO 4000:REM **end/rerun game**
100 :
1000 REM **** introductory text ****
1010 MODE 1:INK 1,26:PAPER 0:BORDER 0:PEN 1
1020 PRINT SPC(13);"DEEP THOUGHT"
1030 PRINT:PRINT SPC(13);"INSTRUCTIONS"
1040 FOR T=1 TO 5:PRINT:NEXT T
1050 PRINT "The object of the game is to break a"
1060 PRINT "four figure code created by the Computer"
1070 PRINT "There are three skill levels; 1 is the"
1080 PRINT "easiest and 3 is the hardest. At skill"
1090 PRINT "level 1, the computer's code will only"
1100 PRINT "contain digits 1 to 9 and no digits are"
1110 PRINT "repeated. At skill level 2 the code may"
1120 PRINT "include zeroes, and at level 3 repeated"
1130 PRINT "digits may also be used."
1170 LOCATE 1,24:PRINT "SELECT SKILL LEVEL REQUIRED (1/2/3)"
1180 LET SK$=INKEY$:IF SK$<>"1" AND SK$<>"2" AND SK$<>"3" THEN GOTO 1180
1190 LOCATE 1,24:PRINT "PRESS ANY KEY TO PLAY GAME AT LEVEL "+SK$
1200 CALL &BB18
1998 RETURN
1999 :
```



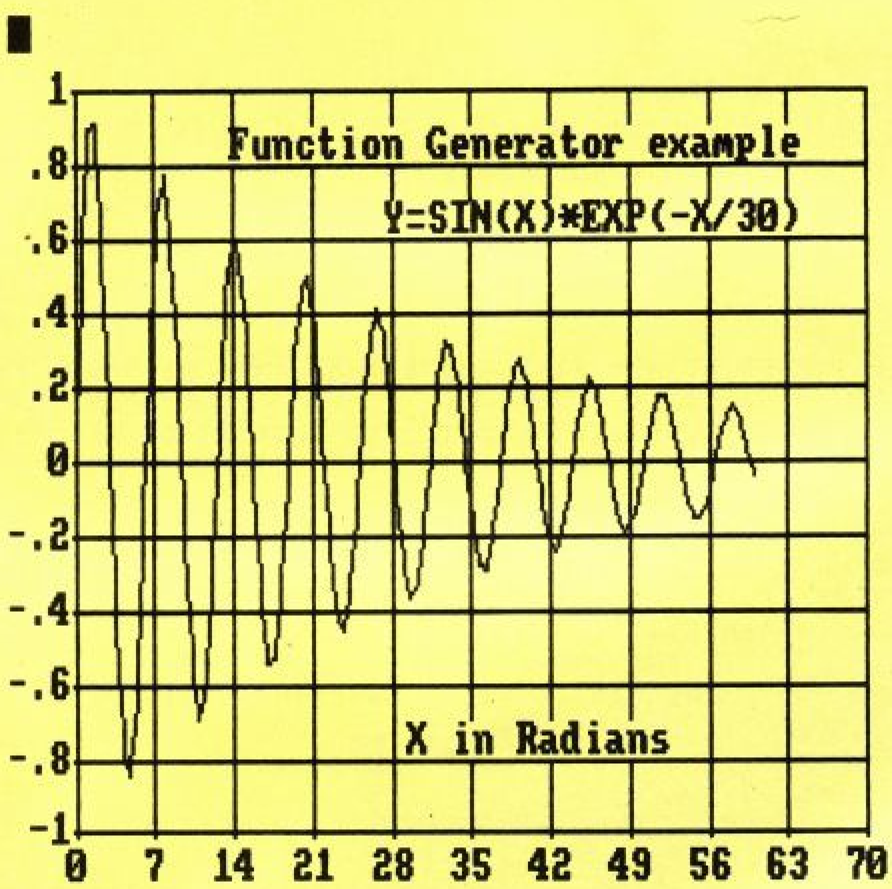

```
2000 CLS:BORDER 5
2010 LOCATE 23,2:PRINT CHR$(143);" ";CHR$(143);" ";CHR$(143);" ";CHR$(143);"
     SCORE"
2020 FOR T= 348 TO 444 STEP 32:PLOT T,386:DRAW T,364:DRAW T+22,364:DRAW
     T+22,386:DRAW T,386:NEXT T
2030 PLOT 332,10:DRAW 482,10:DRAW 482,394:DRAW 332,394:DRAW 332,10
2040 PLOT 333,358:DRAW 481,358
2050 WINDOW #1,3,18,2,4
2060 INK 3,0
2070 PAPER #1,13:PEN #1,3
2080 PRINT #1,"***************** DEEP THOUGHT *****************";
2090 WINDOW #2,2,19,10,19
2100 PLOT 10,82:DRAW 306,82:DRAW 306,258:DRAW 10,258:DRAW 10,82
2110 PEN 1:LOCATE 2,8:PRINT "INSTRUCTIONS"
2120 LOCATE 2,22:PRINT CHR$(230)+" RIGHT NUMBER":PRINT "   IN WRONG
     PLACE":PRINT " ";CHR$(231)+" RIGHT NUMBER":PRINT "   IN RIGHT PLACE"
2198 RETURN
2199 :
3000 REM **** play the game ****
3010 LET te$="":RANDOMIZE TIME
3020 FOR n=1 TO 4
3025  c(n)=INT(RND*10)
3030 NEXT n
3040 IF sk$="3" THEN GOTO 3080
3042 FOR n=1 TO 3
3044  FOR p=(n+1) TO 4
3046   IF c(n)=c(p) THEN te$="fail"
3048  NEXT p
3050 NEXT n
3060 IF sk$="2" THEN GOTO 3080
3064 FOR n=1 TO 4
3068  IF c(n)=0 THEN te$="fail"
3070 NEXT n
3080 IF te$="fail" THEN GOTO 3000
3090 LET z=1
3100 CLS #2:PRINT #2:PRINT #2,"ATTEMPT NO.";z:PRINT #2:PRINT #2,"?";
3110 FOR n=1 TO 4
3120  LET in$=INKEY$:IF sk$="1" AND in$<"1" OR sk$="1" AND in$>"9" THEN 3120
      ELSE IF in$<"0" OR in$>"9" THEN 3120
3130  LET u(n)=VAL(in$):PRINT #2,u(n);
3140 NEXT n
3150 FOR n=1 TO 4:PRINT #2:NEXT n
3155 PRINT #2,"Is this what you  want? (Y/N)"
3160 LET in$=INKEY$:IF in$="N" OR in$="n" THEN CLS #2:GOTO 3100
3170 IF in$<>"Y" AND in$<>"y" THEN GOTO 3160
3180 LET u$="":FOR n=1 TO 4:LET u$=u$+RIGHT$(STR$(u(n)),2):NEXT n
3190 LOCATE 22,2+(z*2):PRINT u$
3200 REM **** to compare input and answer ****
3210 LET comp$=""
3220 FOR n=1 TO 4:LET p(n)=0:LET q(n)=0:NEXT n
3230 FOR n=1 TO 4
3235  IF u(n)=c(n) THEN comp$=comp$+CHR$(231):p(n)=n:q(n)=n
3240 NEXT n
3250 IF LEN(comp$)=4 THEN LOCATE 33,(2+(2*z)):PRINT comp$:GOTO 3350
3260 FOR t=1 TO 4
3270  IF p(t)<>0 THEN GOTO 3310
3280  FOR n=1 TO 4
3285   IF q(n)<>0 THEN GOTO 3300
3290   IF t<>n AND u(n)=c(t) THEN LET comp$=comp$+CHR$(230):LET Q(N)=N:LET n=4
3300  NEXT n
3310 NEXT t
3320 LOCATE 33,(2+(2*z)):PRINT comp$
3330 IF z<10 THEN LET z=z+1:GOTO 3100
3340 LET TE$="":IF LEN(COMP$)<4 THEN LET TE$="fail"
3350 FOR n=1 TO 4:IF MID$(comp$,n,1)=CHR$(230) THEN te$="fail":NEXT n
3360 CLS #2:PRINT #2:IF te$="fail" THEN PRINT #2,"  BAD LUCK!" ELSE PRINT #2,"
     WELL DONE!"
3370 PRINT #0:LOCATE 22,2:LET C$="":FOR N=1 TO 4:LET C$=C$+
     RIGHT$(STR$(C(N)),2)      :NEXT N:PRINT C$
3380 FOR T=348 TO 444 STEP 32:PLOT T,386:DRAW T,364:DRAW T+22,364:DRAW
     T+22,386:DRAW T,386:NEXT T
```

```
3998 RETURN
3999 :
4000 REM **** RE-RUN OR END? ****
4010 PRINT #2:PRINT #2:PRINT #2,"PLAY AGAIN? (Y/N)"
4020 IN$=INKEY$:IF LEN(IN$)=0 THEN 4020 ELSE IF IN$="N" OR IN$="n" THEN 4999
4030 IF IN$<>"y" AND IN$<>"Y" THEN 4020
4040 CLS #2
4050 PRINT #2,"You were playing":PRINT #2,"at level "+sk$+". Would":PRINT
     #2,"you like to alter":PRINT #2,
"the level for the":PRINT #2,"next game? (Y/N)"
4060 IN$=INKEY$:IF LEN(IN$)=0 THEN 4060 ELSE IF IN$="N" OR IN$="n" THEN 4998
4070 IF IN$<>"y" AND IN$<>"Y" THEN 4060
4080 PRINT #2:PRINT #2,"ENTER SKILL LEVEL"
4090 IN$=INKEY$:IF LEN(IN$)=0 THEN 4090 ELSE IF IN$<"1" OR IN$>"3" THEN 4090
4100 LET SK$=IN$
4110 PRINT #2:PRINT #2,"LEVEL "+SK$+" SELECTED":FOR T=1 TO 1000:NEXT T
4998 GOTO 50
4999 CALL &0
5000 REM  *** END OF DEEP THOUGHT ***
```

■ CPC464 USER

Practical Programs

Grasp - A business graphics utility



The Sinclair QL boasts a range of professional packages from the software house of Psion (shame about the lack of QL games). Now the Amstrad CPC 464 can start to make similar claims.

Even without CP/M there are some very good programs appearing. Grasp is a user friendly graph drawing utility, similar to the QL's 'Easel' program . At first it is a bit bewildering but after a little time with the manual it is possible to draw all manner of pretty pictures.

Part of the reason for its complex commands is the tremendous amount of flexibility you have. However at a simple level the program is very easy to use. In the graph drawing section there are nine options, each of which can be configured for a pie, bar, or line graph. First, values need to be typed in and the shape of the graph for each set of values specified. Fortunately the system comes with the first three graph functions allocated so that the beginner need not worry about this complication.

For the more advanced user there is the ability to draw a graph from a function. At any stage it is possible to add text, overlay one graph on another or dump the picture to an Epson compatible printer. The drawing of pie charts is a little slow but scores over similar programs in that the segments of the pie are cross-hatched in a combination of colours. Mode 1 is used for drawing the graphs which gives both good resolution and a selection of colours.

The data is input in a simple, friendly form, it being easy to correct mistakes and edit a file. One option which is missing is the ability to copy data from one file to another but then this is a graphics program and not a spreadsheet.

For the average user this program may be of little use but for anyone who has to display and present figures in a graphical form this could be a very powerful tool.

Grasp is avaliable from Camel Micros, 33A Commercial Road, Weymouth, Dorset, for £8.50.

Noticeboard

Last minute news and information.

Paul McCartney to star in CPC464 Game.

Mindgames, the people who brought you American Football on the Amstrad are to begin work on a computer version of "Give my regards to Broad Street." This is the new Paul McCartney film which includes many Beatles' and Wings' songs. Work has not yet been started on the project but Argus Press Software - who own Mindgames want to launch Amstrad, Commodore and Spectrum versions.

Jeff Minter to write for the CPC464

Most Commodore owners know of Jeff Minter - the hippie mega-programmer who likes llamas, goats and sheep. Now he is to write a program for the CPC464. It is still very much a secret project so jeff refused to be drawn on the idea behind the game. He said that it was not really a game but a new idea, and that he was amazed that no-one had thought of it before. Initially the program will only be avaliable for the Commodore 16, Plus 4 and 64, however an Amstrad version will follow sometime in the New Year.

This will be one of the few programs from Jeff Minter's software house, Llamasoft, which does not involve shooting at things but you will be able to interact with it. Jeff says that he expects the idea to be copied but that you can't prevent this and it is silly to keep a good idea to yourself. Without giving a clue as to what this program involved he emphasised how good it was by showing screen shots of the game he stopped work on so that he could get down to producing this new program. These were stunning so we can look forward to a first rate production from Llamasoft.

Spot the feature:

Sorry about the absence of the CP/M and LOGO features from this issue. Our author was indisposed, and missed the deadline: these features will appear in the next issue - by which time more of you will have your disc drives anyway.

Attention all User Club members.

Amstrad CPC464 User needs a team of software reviewers. If you want a chance to tell the world what you think of the latest software releases then write, with your membership number to

The Editor, Amstrad User, 169 Kings Road, Brentwood, Essex, CM14 4EF
and we will send you details.

MEMBERS ONLY

AMSTRAD CPC464 USER

£2000 program competition!

Think what you could buy with a £2000 windfall......

The objective couldn't be simpler: write the best program submitted to the CPC464 user review panel. Every other month £2000 will be awarded to the best submission.

RULES

1 The winner(s) will be the person or group who submits the best program. It may be any piece of software that runs on the CPC464.

2 The name of the winner will be printed in the next issue of CPC464 USER.

3 All entries must arrive by January 31st 1985. Entries arriving after that date will be included in the next issue's competition.

4 All entries must INCLUDE a disc or cassette copy of the program (plus loading instructions where necessary!), AND A SIGNED COMPETITION ENTRY FORM. A full listing would be helpful, but not essential. A brief summary of the program and its purpose should accompany all entries.

5 All entries will be treated in strict confidence.

6 Neither AMSOFT nor Amstrad can be held to be responsible for any loss or damage to any submission.

7 If you want the program returned, please supply a stamped self addressed envelope of adequate dimensions.

8 No correspondence can be entered into concerning programs submitted for the cash prize competition.

9 The decision of the judges is final.

10 It is a condition of entry that all entrants have exclusive ownership of the copyright of the material submitted, and that the winner agrees to assign all copyright in the winning program to AMSTRAD. Where the entrant is more than one individual, then one person MUST be nominated and empowered to act on behalf of the entire group.

All entrants must undertake not to submit the same or a similar program to any other magazine, publisher or organisation until after the announcement of the winning entry.

11 AMSOFT may offer to publish programs either in Amstrad CPC464 USER or as commercial software, in which case AMSOFT will agree the terms on an individual basis with the author(s) concerned. AMSOFT reserves the right to amend, alter or revise any program that it publishes.

12 No employees of AMSOFT or AMSTRAD, or their relatives may enter this competition.

HOW TO ENTER:

Think about your program, and map it out in a series of events or features. Write the program onto cassette, based around these events and check that the program runs as intended. Once you are satisfied, send a copy of the cassette in a suitable envelope along with the following:

1) A brief summary of the program in 500 words or less.

2) The completed competition entry form, which must be signed.

3) Program listings, if available.

4) SAE if want your entry returned.

See the entry form enclosed with this issue, and remember to fill it out with your name and address!

Browsers corner

With this issue on the bookstalls, we expect a number of non-owners to pick up a copy to find out more about the CPC464 system before buying. Here's a selection of the commonly asked questions put forward by the browsers.....

Our august body of dealers might well like to take note of these questions and ensure that sales staff are clued up with answers. We'll be sending our roving reporter around to 'Ask Questions'

Graphically speaking

1) I intend to purchase a Shinwa CP80 dot matrix printer. Will AMSWORD support all of this printer's features - particularly the ability to change typeface within a line, subscripts etc. - within the program?
b) Will the CPC-464 dump high-resolution graphics from screen to printer?
c) Do you intend to produce software to support graphical displays and reports?

M B W, Kingswood, Bristol.

CPC464 User:Amsword supports most of the features of the Shinwa CP80 printer as far as text is concerned, but the 7 bit nature of our printer port makes graphics less successful.

We are sure that there will be plenty of software available which will produce graphics output by our DMP-1. Indeed we have already seen early versions of combined report/graphical software, the Starwatcher program will print the entire known universe on your DMP1 ....and Camel Micros have produced an excellent utility called GRASP, which may be reviewed elsewhere herein.

And remember to fill in the guarantee card if you purchase a CPC464, and you will receive a mailing about available software.

Peripheral visions

How much would the MP-1 cost? Could you send me details of it, how it works? Are you planning on releasing a modem?
What is the machine code chip?
Does the CPC 464 have an RS232 Centronics interface?
Are there modes?
Are Amsoft going to be the sole distributors of software?
Will all software be cassette or disc based?
Are there any predefined characters stored in ROM?
Thank you for answering these questions.

W S, Belfast, N Ireland.

CPC464 User: Ok all you clever clogs out there. Here's a lost soul seeking guidance in the world of Micro Jargon. You can see just how meaningless jargon can be when a newcomer is so roundly bamboozled by things us cognoscenti take for granted.

There are three screen modes supported by the computer: 20, 40 and 80 column text, with a corresponding graphics resolution of 160x200, 320x200 and 640x200. Our printer has a parallel Centronics style interface. At present there is no Amstrad RS232 serial interface available for the CPC464 - but third party supplies are preparing to pitch in: ditto modems.

BMX compatibility

I have just finished reading the latest issue of Personal Computer News, and I would like further information on the CPC 464.

I also have some questions that might not be in the literature, ie will the system work in Denmark on 220 volts and continental cycles?

J H Denmark.

CPC464 User:The system will work on 220 volts and continental 'cylces' (Ok so our Danish isn't so bright either). The following address is the Amstrad dealer in Denmark:
Dinamicro Aps
26 Flintholm Alle
DK 2000
Copenhagen F
Tel: (01) 88 02 88

Serves you right!

Thank you for your letter and brochures regarding the CPC464 computer. I have in fact looked at the equipment in the shops you mention and I am very impressed with it. Unfortunately as you probably realise computer retailing is of a very low standard and it is impossible to get helpful answers about any product especially if you are not already a computer buff.

My purpose in acquiring a home micro is to learn how they work and use it as a training tool so that when I decide to buy one for office use I will be sufficiently experienced to make a better judgement. On the face of it your machine seems most suited to my purpose.

However I decided I should use the computer for some specific task to get the best training benefit and decided I would use it to index my collection of books. I would want each book to be entered as follows:
Title
Author
Subject
Publisher
Illustrator
Bookshelf location

Obviously I would want to be able to cross reference in every way possible and for example be able to bring up a list of all books by one author or all books on a particular subject. What I want to know is whether I can purchase a program off the shelf for this type of listing or whether I would program the computer myself. I cannot see anything in your catalogue. If I program it myself what guidance would I have on how to do it.

S G, Maidstone, Kent

CPC464 User: At present we have no 'off the shelf' programs designed to store small amounts of data such as you require, although by the time this is published, MASTERFILE 464 should be available, and this is just what you need. However if you are considering purchasing a disc drive there are hundreds of CP/M compatible programs, including our Microscript and Micropen combination.

If you wish to attempt to write your own program and are completely new to programming, I can recommend 'A Tutorial Guide to Amstrad Basic' (SOFT 111) as a useful aid.

Upgrade?

I am interested in Amstrad CPC464 computer. As a complete newcomer to the computer scene I wish to know if this computer will not only enable me to program but also give me a full understanding of BASIC.

As the CPC464 comes with a monitor I wonder if it is possible to upgrade from a green tube monitor to a colour monitor? If this is possible how much (approx.) would this cost? If this is not possible could a colour T.V. be used as alternative to a green tube monitor.

G B, Harlow, Essex.

CPC464 User: We have available on our software list 'A Tutorial Guide to Amstrad Basic' which comes in two parts and is designed for the complete beginner. This together with the User Manual should enable you to achieve a good understanding of BASIC.

It is not presently possible to upgrade a green tube monitor package by buying a separate colour monitor, but it is possible to use a colour television by buying a modulator/power supply which costs £29.95. (See the above letter.)

The Post Graduate

I was interested to read the review of the Amstrad CPC464 home computer in the June edition of 'Your Computer'. Next academic year I begin work on a Ph.D at Sheffield University, and I was looking for a micro that would be useful for Word Processing and Data Processing during my research period. In connection with this I have a number of questions to ask about the CPC 464.

Whichever computer I eventually purchase I will need to run a Daisy Wheel printer, or a computer compatible type-writer, from it. I understand that the CPC 464 has a parallel printer interface. Does this mean that a printer, such as the JUKI or a Daisystep could be run from the computer without further software or hardware? Or would I need to purchase additional equipment, such as a Centronics interface? If so could you tell me exactly what would be involved?

A G B, Little Stoke, Bristol.

CPC464 User: The CPC464 has a 7 Bit centronics style printer interface which will operate most printers with a Centronics interface including those you mention. All you will need to purchase in addition to the printer is an appropriate cable (PL-1 £9.95).

Going spare

I have been interested in the AMSTRAD and I am hoping to get one at Christmas with disc drive and printer. Does the AMSTRAD have spare parts available?

D G, Heaton, Bradford.

CPC464 User: Amstrad have a complete service department for the CPC464 - and many dealers operate well equipped service centres at locations across the country (and now the world).

WP

Although the sales leaflet mentions Word Processing, it does not say how this is to be done i.e. ROM cartridge or cassette or disc and whether this software program is available at present. Similarly for other business type application i.e. spreadsheet, data storage etc which are the things which we home computer users are now looking for as we are fed up with games and want serious use of the equipment.

I am also not clear whether the printer you advertise would be suitable for word processing (DMP1), I imagine not as it is Dot Matrix and tractor feed with continuous roll paper.

I hope that you can clear up these points, as the local dealers do not seem to be able to do so, and I am otherwise impressed with the equipment, and incidentaly I am a long standing owner of Amstrad hi-fi equipment with which I have been very satisfied.

A P B, Cleveland.

CPC464 User: All of our software is supplied on cassette, discs will be available at the time of release of our disc drive, and most programs will be available on the disc as well.

Plans for ROM based software are not perhaps as important with the CPC464 as for micros with smaller usable memories and either very slow or very costly disc systems. The sideways ROM facility of the

CPC464 is primarily intended for interface control for things like discs, modems and the like: applications are rather better operated from disc in the first place.

As you state in your letter, the DMP-1 is Dot Matrix with tractor fed, continuous fan fold paper. It is not 'letter quality', although the results are of course perfectly legible!

Unimpressed

Through some contacts which I have within the industry, I have spoken to Mr Dickie Mould, the Sales Director of AMSTRAD, regarding the unwillingness of your organisation to sell me one CPC464 with both the CTM 640 and the GT 64, but sadly without success. I must however, say, that such reasons as I have been given by both retailers and AMSTRAD, justifying the logic of this policy, have been wholly unconvincing.

However, recognising No for an answer, I have with some misgivings acquired a CPC 464 with CTM 640 only. I am most pleased with your equipment, so far, EXCEPT that experience bears out my view that for my particular requirements, the greater clarity of definition offered by the GT 64 remains a 'must', if I am to use and develop my system as I would wish.

As you have indicated very firmly your inability to supply both monitors, I am forced to look elsewhere, and I seek advice as Messrs **** of Worcester are unable to help.

Can you recommend a green monochrome monitor of equal quality to your GT 64 and which I can connect to the video output of my CPC464? Will it be in order for me to drive the CPC464 from the CTM 640 leaving the CTM 640 video lead disconnected?

The necessity for these questions seems to me to be quite crazy, but I put them to you in all seriousness as I have a REAL NEED FOR A MONOCHROME MONITOR something which I seem to have difficulty in conveying to your organisation.

J H W, Worcester.

CPC464 User: Amstrad isn't necessarily convinced that it is wrong to sell monitors and computers separately. It happens that this year the production capacity is limited to 200,000 units of computers and monitors; but if the CPC464 was sold without a monitor, or the monitors were sold separately, then research shows that existing computers owners would snap up all the monitors overnight. Amstrad want to be in the computer business as well as the monitor business! The situation regarding availability may change in 1985 - who knows?

The MP-1 - power supply/modulator is an upgrade to colour which might result in spare GT64's reaching the second hand market and we can only suggest that you pursue this as a means of obtaining one in the mean time.

Either monitor will operate the CPC464 on its own with the video lead disconnected and it is possible to operate with two monitors connected in parallel as long as the RGB signals are not taken to the GT64. There are a number of mono and colour monitors (remember to get one with a linear input range or you will miss most of the colours available!) that can be used with the CPC464, but the best course is to seek the advice of a specialist dealer who can provide the right connecting lead.

Applications!

I am currently looking round for my first Micro-Computer and have seen the CPC464 for sale in various branches of ***** the only trouble being that the sales staff seem to know even less about computers than I do (if that is possible) hence this letter.

I am not interested in being able to take a computer to bits and rebuild it and I certainly don't want to have to learn a completely new language in order to be able to make it work.

Also I am not interested in using it to play arcade games:- what I do want it to be able to do is store various information which is at present in various files and continually getting mislaid plus I am at present compiling a short history of one of the prominent families of Ayrshire and would like to have editing facilities to save the vast amount of paper I'm using editing written copies.

Also with the advent of time I would like to be able to add to the system-microdrive and printer, being the two peripherals that come to mind although doubtless there will be others to come on the market.

I also want to be able to run a double entry book keeping system for a farm which I am presently doing manually. What I want to know is if it is possible at present to add on a microdrive and printer and if so do you manufacture them or if not is there another manufacturer's machine which would be compatible?

What programs along the lines of my requirements, do you market yourselves and/or are any other makers programs usable?

J S, Ayrshire.

CPC464 User: The computer is not available without the screen nor without the built in tape recorder. A printer is available now and the disc drive at the end of November.

The two projects you mention may be a little over ambitious for the CPC464 - although the CP/M disc system option provides a range of software products for accounts and database management that may well suit your purpose. Check the reviews elsewhere in this issue.

If you have had no previous experience of computing, we would advise that you purchase an 'off the shelf' package for your requirements rather than attempting to program it yourself.

AMSWORD

The burning questions answered!

Will it, can it, should it, could it....?? Since first announced, AMSWORD has been sought after by more owners than any other program on the AMSOFT list. With all the bells and whistles, plus an extensive test phase, AMSWORD has been a little late. Was it worth waiting for? Popular Computing Weekly certainly thought so, how about a novice user....

In the October/November issue you were promised an unexpurgated opinion of AMSWORD written by 'a novice word processor user'. Well at last I have some idea of my job description! Seriously though, I have had some limited experience with MicroPro's famous WORDSTAR so I suppose I am qualified in this task.

Tasman Software are the writers of this wordprocessing package and my copy came complete with a forty five page manual. Although mine was a photocopy, the finished print is now ready.

On loading the program, which can be fast or slow load since you can re-save it yourself at either speed after you have customised features such as printers etc., the screen shows an eighty column text area topped with a help display showing some of the control key functions. The bottom of the screen has a margin indicator line under which are boxes each containing useful information such as current line being worked on, cursor position, column number and various 'switch' status indicators.

The HELP display can be changed to show five different displays of control commands each of which is grouped under a heading such as DELETE/INSERT, CURSOR MOVEMENT, FORMATTING, SEARCH and so on. By using a combination of the CONTROL or SHIFT key and the specific key shown on the help display, one is able to carry out the various functions involved in text manipulation. Pressing the ESCAPE key instantly fills the screen with all of the help displays shown together. But I found having a part of the help page at the top of the screen at all times a great advantage, especially as you are able to select the particular part that you are either not so clever with - or need to refer to regularly. Either way it gives a feeling of security just being able to see it there!

The manual has all the control functions listed right at the begining and each one has a page number to enable the user to look it up and fully understand how to use it.

The next step is to follow instructions and load the AMSWORD TUTOR FILE. This is an instructional text file which follows AMSWORD on the tape and is loaded by making the required selection on the MAIN MENU. This menu, selected by CONTROL and ENTER, gives eight choices which are PRINT text, SAVE text, LOAD text, MERGE text, RETURN to text, CUSTOMISE Program, Save AMSWORD and into BASIC. The last three were a real surprise to me and I'm sure they will be to you when you see what they can be used for! Anyway, back to the TUTOR FILE, having selected LOAD text file and followed the on-screen instructions, I wait the few minutes it takes to load. Worth mentioning here that the MAIN MENU also keeps an on-screen record of how many words, lines and characters of text you are working with, complete with how much file memory is left as represented by characters. Once loaded, the TUTOR FILE introduces itself and in true user friendly fashion proceeds to take you through some of the command functions. Having a ready-typed-in file of any kind to experiment with is handy enough, but to be able to follow the instructions of this one and to see the results as they happen on the screen is a sheer joy. Full marks for this idea. By the time I had followed instructions and carried out the functions involved, I began to feel fully at home with AMSWORD.

Bearing in mind the TUTOR FILE only attempts to familiarise the user with some of the commands available, it soon proved to me that this was no ordinary 'home use only' wordprocessor but a fully fledged version that would hold its own against some well known business packages whilst still retaining the ability to be understood by a humble 'novice wordprocessor user'.

Going through the manual after having had a good 'play' with the TUTOR allowed me to digest and understand more than I probably would normally. I still found areas that were a bit 'over my head' but they were mainly technical items. I still don't really know my hexadecimals from my binary digits! Nevertheless the manual is very comprehensive and informative.

I found some items quite fascinating, for example, you can go into the program, that is 'into BASIC' and re-define the numeric keys with lines of text. The program comes with the numeric pad KEY 0 pre-programmed with a full name and address all set out ready for a letter. It even has 'Dear Sir'. You'll have to buy AMSWORD to find out who's name and address it is. (No prizes for guessing). When you 'Save AMSWORD' you also save any changes or 'CUSTOMISING' so you can have all sorts of instant text literally at your fingertips.

With a standard screen width of 80 coloumns that's extendable to 128 columns and screen colour combinations that are uncountable, it's easy to see how useful the customising and save/duplicating facilities will be. It is not however a licence to make 'Pirate' copies and the copyright warning in the manual should be heeded.

Saving of text files, letters etc. to cassette is achieved by selecting the 'SAVE text' part of the MAIN MENU and following the on-screen prompts.

There is the choice of save speed, normal or fast, also saved will be margin settings and Pre-set printer controls etc.

One of the features of AMSWORD that I like is the WORD-WRAP. This is the method by which the last word typed onto a line is automatically moved onto the beginning of the line below if it is too long. The line that the word originated from is then re-justified and you don't end up with half a word at the end of one line and the other half at the beginning of the next. The real benefit of this is that when you print text you will get on your printer paper what you see on your screen. There is the ability to switch off WORD-WRAP and you can decide on right-justify or not, I still find it fascinating though to watch a Paragraph re-justify itself on command after say deleting or changing words.

Another interesting feature is the SEARCH command.

This enables you to type in a word which you want to find, so you could trace names or find whatever information you may have hidden away in your files. The other function of this feature is the REPLACE command. Using this you can change a word or name that appears regularly in your files to another word or name or even change the word for a whole sentence. Whilst 'playing' with the TUTOR I tried this function out. Having instructed the on-screen prompt to change the word 'text' (everywhere that it appeared in the TUTOR) to 'rubbish' I then sat back and had a good laugh as the whole file scrolled up the screen changing not only the word 'text' but re-justifying the paragraphs to accomodate the longer word. [This isn't an arcade game: ed]

I could go on describing the many and varied abilities of this wordprocessor, it's text movement abilities, the second character set and numerous print options. I'm sure it will be a massive hit now it's been released. When you think that it is possible to spend a small fortune buying a wordprocessing package that may only equal the qualities of AMSWORD, I am sure that not only the home market will find it impressive but the business user as well.

Technical Note

Spectrum Tasworders will notice many extra features in this implementation, and those of you who want to edit program or data files will be pleased to know that AMSWORD uses conventional carriage return characters as line ends. The Spectrum version did not.

The main point of this is that AMSWORD now edits BASIC programs (that have been saved in ASCII)! A full screen edit facility with all the other bells and whistles means that AMSWORD is doubly powerful.

■ CPC464 USER

CRYSTAL THEFT

FROM WICCA-SOFT

An adventure set in the early days of the Vegan war. It is 2319, and your mission is to direct Field Captain Jonathan Markham of Earth Armed Services into an abandoned Temple to steal a communicator crystal.

How abandoned is the Temple? Can you solve sometimes complex puzzles IN REAL TIME? What use is an accurately machined heavy metallic cube? Can you disable a laser barrier? Will you recognise the final problem before it kills you? Over 90 locations will lull you into a false sense of security, test your wits and may even destroy you.

Available late November for the Amstrad CPC 464



PRIORITY ORDER FORM Dealer Enquiries Welcome

Please rush me AS SOON AS POSSIBLE ____ copies of CRYSTAL THEFT at £7.99 each (inc p+p). I enclose a cheque/P.O. for £ ________ (NO CASH PLEASE)

PRINT IN BLOCK CAPITALS

NAME ____________________

ADDRESS ____________________

POST CODE ____________

Post to: Dept TS, WICCA-SOFT, 107 Bollington Road, Bollington, Macclesfield, Cheshire SK10 5EL

Allow 21 days for delivery.

WICCA-SOFT

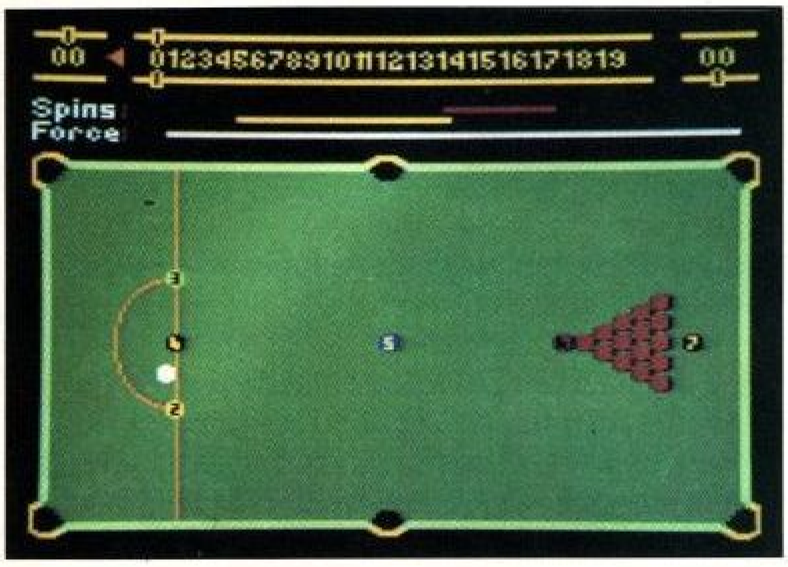
LION HOUSE



BUY YOUR AMSTRAD CPC 464, PERIPHERALS AND SOFTWARE FROM THE LARGEST INDEPENDENT AMSTRAD COMPUTER CENTRE IN LONDON



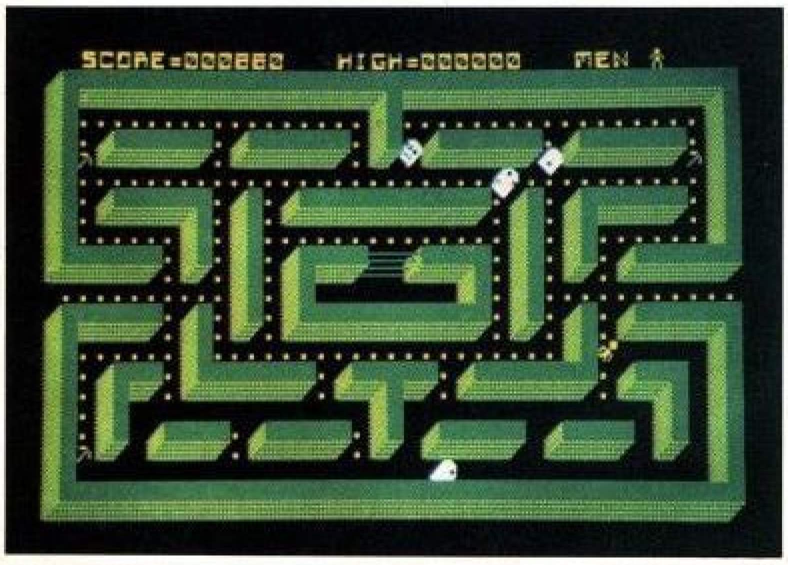
Lion House, 227 Tottenham Court Road, London W1P 0HX



AUTHOR:	AMSOFT/GEM SOFTWARE
FORMAT:	Cassette
PRICE:	£8.95
GRAPHICS:	*****
PLAYABILITY:	*****
ADDICTIVENESS:	****
OVERALL:	*****

Haunted Hedges

The first Pac-Men, Space Invaders, Painter and the like have left a very long trail behind them of similar versions for micro-computers. This program is drifting along the Pac-Man line; in other words, its got a hero collecting pellets with four ghosts chasing him. I can't say much more than that, except that it's an excellent interpretation, in more-or-less 3D. It has a surprising addictiveness to it, mainly because of the fact that you can alter the intelligence of the ghosts, from super-intelligent to pretty thick.

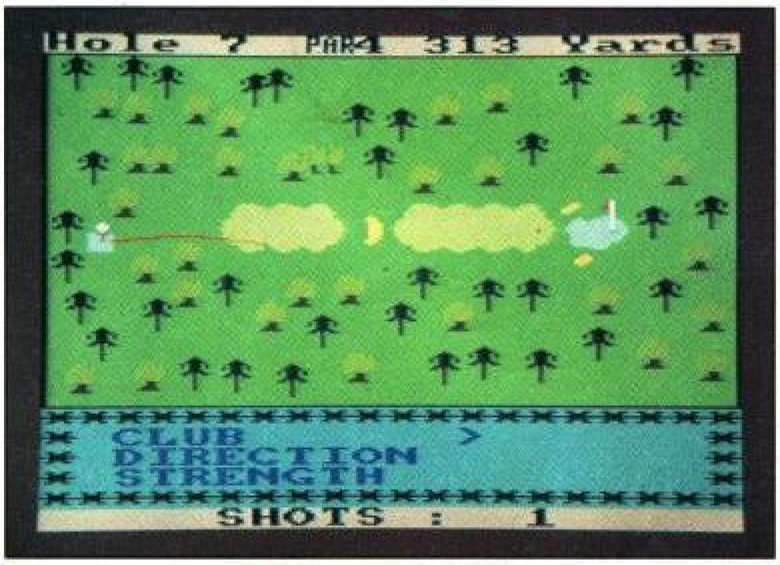


AUTHOR:	AMSOFT/Micromega
FORMAT:	Cassette
PRICE:	£8.95
GRAPHICS:	****
PLAYABILITY:	****
ADDICTIVENESS:	***
OVERALL:	****

Amsgolf

Need I say more than it's a computerised interpretation of Golf? Well, I'll have to. You have this little man who has to whack a ball around a fairway. In the first instance you have your man represented by a small tee. Hitting the ball is easy. Select your club (there is a wide range, all you golfing fanatics). Then choose the direction and the strength of play.

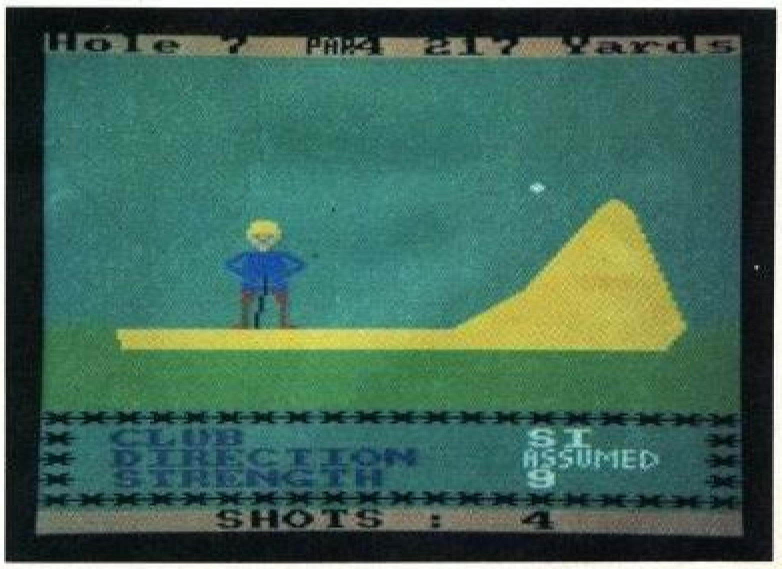
Easy? Well, the handicap system is really rather too hard - especially since as a rookie 16 handicap you seem to have more than your fair share of slices and hooks. I'm told that as your handicap goes down, so you hit further and rather more reliably: but I never got round in better than 20 over par so I never got the password to the next handicap.



Unless you are into golf, the game can get frustrating. After a while, the game becomes a little tedious, especially when I found I was playing three holes in a row that were rather similar! The game gains extra points for the large animated displays that pop-up when you hit the ball into a bunker or onto the green.

A game that's surprisingly playable on the GT64.

AUTHOR:	AMSOFT/Computersmith
FORMAT:	Cassette
PRICE:	£8.95
GRAPHICS:	****
PLAYABILITY:	**
ADDICTIVENESS:	***
OVERALL:	****



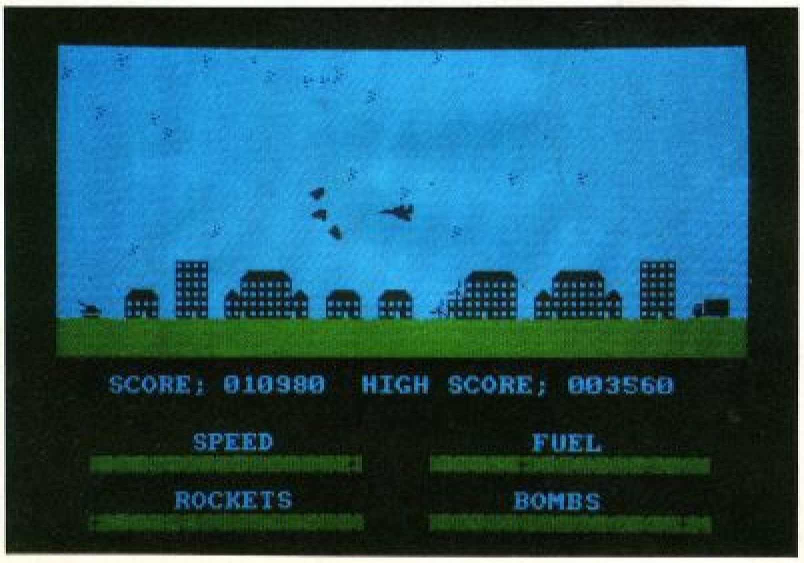
Harrier Attack

When Harrier Attack first appeared for the Spectrum, it was no great technical achievement, but enormously popular nevertheless. Durell have since brought-out Combat Lynx for the Spectrum which will probably divert attention from Harrier Attack. Well, I had Harrier Attack for my Spectrum and it was no big deal. On the Amstrad I must say that I can see no differences between the Spectrum version and this version. Yet, I seem to enjoy playing it more than I ever did. It was introduced at a party and all the computer game freaks gathered around to play. However, after some time there was a unanimous vote that Harrier Attack should stay on.



Funny, I thought. Anyway, the mysterious game with addictive qualities involves flying your Harrier around an island avoiding planes, flak and gunboats. After obliterating the island's town, you have to land back on your aircraft carrier to do it all again at the next level of difficulty.

AUTHOR:	AMSOFT/DURELL
FORMAT:	Cassette
PRICE:	£8.95
GRAPHICS:	***
PLAYABILITY:	****
ADDICTIVENESS:	*****
OVERALL:	****



Bridge It

You certainly require all the concentration you can muster for this game, and a bottle of aspirins might come in handy for the impending headache which is more than likely to follow....

Having set the scene, the task in hand appears simple enough, but to guide your men successfully across all the bridges from one side of the town to the other is not as easy as it looks.

There are four bridges to manipulate (easy!!) but an exceptional co-ordination ability is required since just as soon as you have one man safely across a bridge another appears to require assistance.

One mistimed bridge and the water quickly fills with flailing bodies as you lose track of what is happening to the never ending stream of men charging blindly along the piers. Do not lose heart though, because there are 9 levels of difficulty to choose from and if you are really having problems select the maximum number of lives.

AUTHOR:	AMSOFT/EPICSOFT
FORMAT:	Cassette
PRICE:	£8.95
GRAPHICS:	****
PLAYABILITY:	***
ADDICTIVENESS:	**
OVERALL:	***



Space Hawks

Another Galaxian-like game where the objective is -yes you've guessed -blast at some unknown alien or end up as instellar debris yourself.

In most versions of this game that I have seen, when you hit an alien it completely disappears from the screen never to be seen again, but in this version if you shoot an alien while it is waiting in line ready to swoop, a lump of debris (an alien without its wings) falls from the sky down to the bottom of the screen. I thought this was a nice touch.

If you manage to succeed in shooting at this debris, you will be duly rewarded with 150 points for every hit, but watch out, your ship is big and an easy target, even for a dead alien...

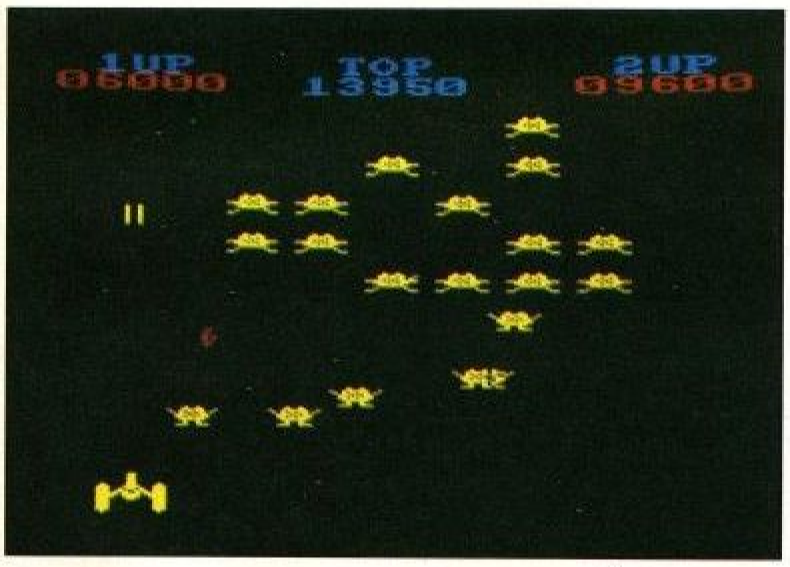
You start with three lives (ships) which diminish rather quickly, and the only way to acquire more ships is to practise until you can score 10,000 points. There are 7 levels of play, but after level 3 you must watch out for the indestructible space mine which if shot will divide into 4 mines making your survival near impossible!

The sound leaves a lot to be desired but the intro music, reminiscent of a well known space theme no less, is very good even if it is a shade repetitive.

The display is made up in graphics mode 0 (lowest resolution) to make use of the 16 possible colours however, I would have preferred to see mode 1 being used as the screen seemed to be a bit cluttered. Perhaps if my space ship had been a little smaller, I wouldn't have got fired at so much.

Overall though, this game is worth a glance and it is one of the few available to have an option for one or two players.

AUTHOR:	**AMSOFT/DURELL SOFTWARE**
FORMAT:	**Cassette**
PRICE:	**£8.95**
GRAPHICS:	***
PLAYABILITY:	****
ADDICTIVENESS:	***
OVERALL:	***



Astro Attack

In this maze-style arcade game, you and your trusty space ship equipped with the latest photon blaster, are transported to a game grid somewhere in another time zone infested with thousands of Rigonites although only four can be seen (the other's I suppose are watching the fun!).

These Rigonites are very easy-going aliens, very thick too, they can't see you even if you are right next to them. They are also very impatient and give you only a thousand of their seconds (about 30 of ours) to attempt to destroy them all, that's if you can manage to escape getting killed in the meantime... If you fail to wipe them out, or vice-versa within the time allowed, they switch on their 'matter zapper' which destroys everything except Rigonites.

Points are scored every time you hit a Rigonite and if you are very quick extra points can be gained by picking up any of the satellites which mysteriously wander on and off the grid.

Special care should be taken to avoid the deadly force fields in order to preserve your three precious lives.

The sound in this game is adequate for the style of game, but I felt that it could have been enhanced a lot more. Even though the graphics are a little tedious I recommend the game for a first time arcader, but not for the hardened player who will get bored with it very quickly as each level changes only slightly from the previous one, even if there are 39 levels of difficulty.

AUTHOR:	**AMSOFT/IAN BEYNON**
FORMAT:	**Cassette**
PRICE:	**£8.95**
GRAPHICS:	***
PLAYABILITY:	***
ADDICTIVENESS:	**
OVERALL:	***



Alien Break-In

This could be described as a non-stop shoot-out. People who like this sort of game where lives are abundant and rarely lost are few and far between. I cannot say much about the game, except that it involves shooting-down aliens which are variously revolving fried-eggs on legs, blue fried-eggs on legs, eggs on their own, tiny missiles and a sausage with a mouth. Let's hope that once they've broken in, they'll go home again.

AUTHOR:	**AMSOFT/Romik**
FORMAT:	**Cassette**
PRICE:	**£8.95**
GRAPHICS:	****
PLAYABILITY:	***
ADDICTIVENESS:	**
OVERALL:	***

Down to business

A full appraisal of as product such as the ABC package would overrun the available catalogue space so we provide an opportunity for suppliers of new AMSOFT software to blow their own horns.

As easy as A-B-C ......

The Amsoft Business Control system (ABC) was developed by Quest International Computer Technology Ltd at Camberley, Surrey. The ABC system is a major breakthrough in offering a comprehensive business accounts facility on the CPC 464.

Bear in mind that no accounts software should (or can) set about teaching users the fundamentals of accounting. In other words, if you don't know your daybook from your trial balance, then buying a computer and an accounts package could be considered as being a prime example of 'a little knowledge' being a dangerous thing.

Always, but always, check out your accountant's view of such things. If he simply dismisses computers and DIY accounts packages because of either shortage of time to appraise them or a fundamental mis-trust of the new fangled, technology, then you can either change your accountant or persuade him to mend his ways.

A properly run and thoroughly understood set of accounts management programs will save a business a lot of time and trouble. A badly implemented and poorly maintained system without regular account's checks could be the quickest way out of business yet devised. You have been warned!

On with the commercial..........

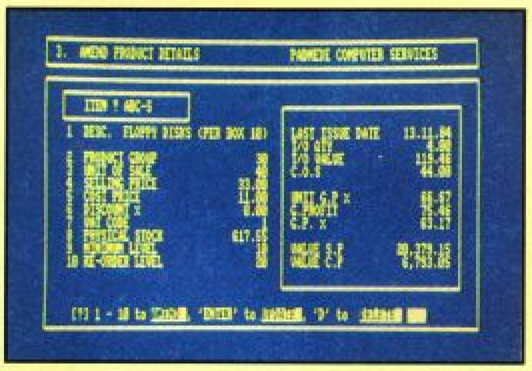
The Amsoft dual disc accounts management system has been developed from the very successful Padmede range of Business programs which is owned by Quest International. Over 30,000 installations already exist on a worldwide basis on machines like IBM, Apricot, Apple etc. Whilst the Padmede range is normally sold for a retail price of £250 per individual module, the same product is now available by special arrangement with AMSOFT for only £149.00!!

The five programs within the ABC range are being offered as a combination suite of three programs ie. Sales Invoicing, Sales Ledger and Stock Control represents the bulk of the accounts function of any business. Purchase Ledger and Nominal Ledger are sold separately as these are not a pivotal part of the accounts system, but are certainly useful adjuncts if you have the discipline to operate them consciensiously.

The prices for these programs are as follows:

Sales Invoicing Sales Ledger Stock Control	**£99** inc.
Nominal Ledger **£33** inc.	Purchase Ledger **£33** inc.

This development has grown from Padmede's long and successful experience of writing business software for micro-computers. ABC is well and truly a system designed for today in the same tradition that has earned Padmede the reputation of international market leaders.



Sales Invoicing (ASIS)

This module is designed to produce Invoices/Credit Notes completely and efficiently for up to 100 Accounts from 250 Products, either as an integral part of the ABC system or operating as an independent system.

When integrated with the other modules in the ABC system the Sales Invoicing System automatically updates the level of physical stock as Invoices/Credit Notes are produced. Customer Accounts are automatically updated and there is also complete integration from the Product file through to the Nominal/General Ledger.

The user is asked to select the basic information such as account number, product reference and quantity. All other information such as the account name and address, product description, selling price and tax rate are generated automatically. All calculations are made instantly, the Invoice/Credit Note is produced and the Stock File is updated.

Products not on the Stock File can be input individually and there are also facilities to enter free text on any Invoice or Credit Note.

Options are allowed for special pricing, discounts, customer discount and settlement discount.

The major benefit of ASIS is that the information used to construct an Invoice together with the arithmetical calculations are all carried out automatically and accurately. Repetitive typing is eliminated and all Invoices and Credit Notes are automatically posted to customer accounts on the Amstrad Sales Invoicing System.

Sales Ledger (ASLS)

ASLS uses recognised accounting regulations and controls to easily and accurately record details of all customer accounts on a Balance Brought Forward or an Open Item basis (selectable by account).

The objective of the system is to produce a complete Sales/Creditors Ledger, for up to 100 Accounts and 200 Transactions per month, as an integral part of the Amstrad Business Control System or as an independent module.

When integrated with the other modules in the ABC System the Sales Ledger is automatically updated from the Invoicing System with all Sales Invoices and Credit Notes. In turn the Sales Ledger control accounts are used to automaticaly update the Nominal/general Ledger accounts and a full breakdown of Sales Analysis is produced.

The major characteristics of ASLS are that all postings ie. invoices, credit

notes, payments received etc. are made to customer accounts in a similar way to writing in a ledger, The user chooses the account to be posted to, makes the posting and immediately the entry is recorded to the account.

Automatically, the Balance Outstanding, Control Accounts, Daybook files, Sales Tax/VAT summaries are all updated giving full accounting control.

Reports from the system include:

Sales/Debtors Ledger Report

Transactions Listing providing the same information as Statements but in a condensed form

Alphabetic Listing of clients
VAT/Sales Tax Summary
Control Accounts
Daybook Listing
Aged Debtors Report
Non-buying Customers Report

Statements are readily produced by the system and formatted either for plain paper or alternatively pre-printed stationery may be used.

Stock Control (ASCS)

The object of the system is to enable the user to keep up to date on his stock situation including orders outstanding for each stock item. Meaningful reports can be produced, stock can be automatically valued at cost and selling prices, and a price list can be produced.

ASCS caters for up to 250 stock items, and for each stock item Physical Stock is calculated as a result of receipts, issues, transfers, returns to stock etc.

As an aid, Minimum Stock Level and Re-Order Level indicators are used to prompt the user to re-order and to speed-up the search for items that need re-ordering.

To help with ordering, additional assistance is provided for the user because he is able to record orders placed on his supplier by quantity and actual order number. Likewise there is a facility to record orders placed on him by his customer. As these orders are satisfied they are matched against the order number and deleted from the file.

Free Stock is automatically calculated by taking the Physical Stock less Customer Orders and plus Supplier orders that have not yet been satisfied.

ASCS uses the same stock file as the Amsoft Sales Invoicing System (ASIS) and, therefore, has the same facility for Cost Price, Selling Price, VAT Code, Discount % on Selling Price, product Group, Unit of Sale, and also the Product Description.

Each product is allocated an 8-digit alpha-numeric code with a description of 25 characters. By using a Product Group Code each stock item can be further identified into a specific category. This two digit code can also be used to allocate a stock item to a branch or Department. When printing reports on product details these can be produced by product Group Code as well as by Product Number. The user can also select the following additional information for each stock item:

(a) Turnover by

** Quantity*
** Sales Value*
** Cost Value*

(b) Gross profit

** Unit Gross Profit*
** Unit Gross Profit %*
** Gross Profit on Turnover*
** % Gross Profit on Turnover*

(c) Valutaion

** Free Stock at Cost Price*
** Free Stock at Selling Price*
** Customer Orders at Selling Price*
** Supplier Orders at Cost Price*
** Grand Totals at end of reports give Stock Valuation at Selling price and Cost price*

(d) Orders

* Order Numbers that are still outstanding, i.e. Suppliers and Customers

The usercan also limit which stock items he wants to have reported by choosing from the following:

(e) Those stock items below Re-order Level

(f) Those stock items below Minimum Stock Level

(g) Those stock items that are zero or negative Physical Stock

(h) Those stock items where there has been no movement before or after a specified date

(i) Those stock items between a certain range of Turnover value.

In addition ASCS provides a full audit trail of postings, a daybook can be displayed, and a Price List can be printed.

Purchase Ledger (APLS)

APLS uses recognised accounting regulations and controls to easily and accurately record details of all supplier accounts.

The objective of the system is to produce a complete Purchase/Debtors Ledger for up to 100 Accounts and 200 Transactions per month as an integral part of the Amstrad Business Control system or as an independent module.

When integrated within the ABC System the Purchase Ledger control accounts are used to automatically update the Nominal/General Ledger accounts and a full breakdown of Purchase Cost Analysis is produced.

The major characteristics of APLS are that all postings, i.e. invoices, credit notes, payments made, etc. are made to supplier accounts in a similar way to writing in a ledger. The user chooses the account to be posted to, makes the posting and immediately the entry is recorded to the account.

Automatically, the Balance Outstanding, Control Accounts, Daybook files, Tax/VAT summaries are all updated giving full accounting control.

Reports from the system include:

Purchase Ledger Report
Transaction Listing providing the same information as Remittance Advice but in a condensed form
Alphabetical Listing of Suppliers
VAT/Sales Tax Summary
control Accounts for Analysis of Purchases
Daybook Listing
Aged Creditors Listing

Nominal Ledger (ANLS)

ANLS is a complete, comprehensive, balance brought forward Nominal Ledger where Journal Entries are made via the keyboard to up to 400 Nominal Analysis Codes (and 99 sub Analysis Codes).

The object of the system is to produce a complete and accurate set of accounts for your company (or an individual), with a maximum of 800 journal transactions per month being input to the system.

The system is very similar to any Nominal/General Ledger, where transactions can be analysed to

Nominal ledger codes in the range 100-299. You can choose the description for each Nominal Ledger Code, and you can alter them as the need arises. An additional facility is the ability to do sub-analysis using Code No.s 1-99, these codes can also have their own descriptions. This feature is useful where you have branches in a Company and you want a separate set of accounts for each branch as well as overall.

ANLS is fully integrated automatically with the Sales and Purchase Ledgers in the ABC System but has also been designed to run independently from the other systems if so desired.

Entries are made by batch, each containing up to 56 postings, and the computer ensures the batch balances to zero, thus maintaining double entry in the system.

Actual value updates to the ledger are made to a specific month/period in the year. Budgets are entered by quarter, and the system will apportion these budget figures on a monthly basis. To produce variances the actual values of each account is maintained as the 'comparative', and this is also used for comparisons against Year to Date (YTD) Actual Values

Profit/Loss is calculated automatically and saved to Nominal Accounts of your selection at month end.

You can view a Nominal/General Ledger Code and associated postings on the screen at any time and produce reports on demand. The main reports are Trial Balance, Profit/Loss Trading Accounts, together with Balance Sheets. Reports are produced for specific periods/months as well as year to date.

For any organisation, control and proof of control over the accounts is essential. Complete control is maintained in ANLS together with audit trails regardless of input automatically made from the Sales/Debtors Ledger System (ASLS) and the Purchase/Creditors Ledger System (APLS) or through the keyboard for journal entries.

Reports from ANLS can be produced on any printer (sheet fed or continuous), have a maximum of 80 characters to any print line, and can be produced on demand. The various reports that can be obtained are as follows:

* *Audit Trail of all Journal Entries*
* Print Postings - range selectable by Nominal Code range and
* Sub-Analysis Code range
* Report by Nominal/general Ledger Codes postings, descriptions, totals etc. - range selectable by Nominal Code range and Sub-Analysis Code range
* *Print Final Accounts:*
  Trial Balance for period (Profit/Loss)
  Trial Balance for period (Balance Sheet)
  N/L Analysis 1 for period (Profit/Loss)
  N/L Analysis 2 for period (Balance Sheet)
  N/L Analysis 1 and 2 for Year to Date to period

ABC includes many features which are not only unique but represent the real needs of users in that it is:

Fast, reliable and easy to use.
Comprehensively documented and requires minimum operator training.
Fully supported by Quest's 'Hot Line' and optional after sales service.
Fully integrated, each module can be linked or operated independently of the others.

■ CPC464 USER



To others, it's an Amstrad CPC 464, but to you it's

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(The above versions are cassette based, disc versions available soon — details on request)

PROJECT PLANNER

Programs applying Critical Path Analysis to the management of projects were available only for powerful business machines at a cost of several hundred pounds until the publication of this excellent package. It consists of a 50 page tutorial, a teaching program and an applications program.

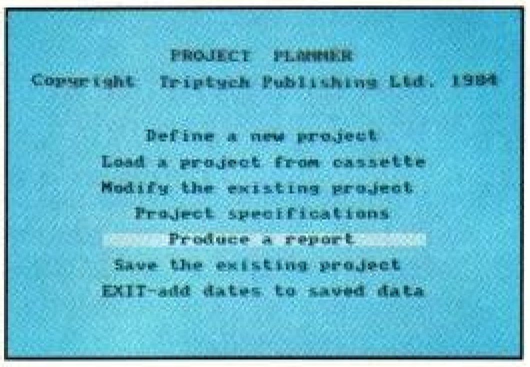
The training section comprising the written tutorial and teaching program take you, step by step, through the principles of Critical Path Management. CPM, as it is usually abbreviated to (no relation), was developed by scientists working on the Polaris project because the project was so complex, that it was impossible to manage and control. In essence, CPM is about organising work and gives you the ability to control what ever you are doing. As with all the Brainpower titles, the training section is broken down into modules to teach you the principles of the subject and self test routines let you monitor your progress and understanding. You will learn that projects can be broken down into a number of different activities.

Between all of these activities lie a number of relationships; some can't start until others have finished and some can be done at the same time as others, sometimes two or three things have to be organised before an activity can start.

The teaching program is used in much the same way as it is in Decision Maker, with the theoretical structure of the system shown as a network of interlinked activities built up gradually on the monitor screen. Running through this network and connecting various activities together lies the 'critical path' and it is this which determines how long the project will take to complete. They are called critical because if any one activity on this path takes longer than expected to complete, then the whole project will be delayed by that amount of time. Projects which aren't critical obviously have some spare time.

Time to spare

The program shows you how this spare time is calculated, from which can be defined the earliest and latest start and finish time for each activity. Understanding how CPM works made



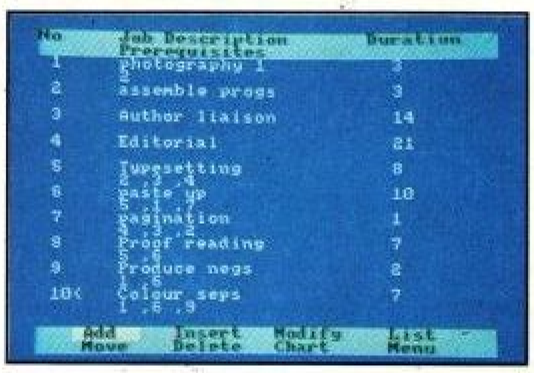
my previous efforts to organise things seem rather inadequate, and the program goes on to explain how to manipulate the activities to make projects more efficient in terms of time and money.

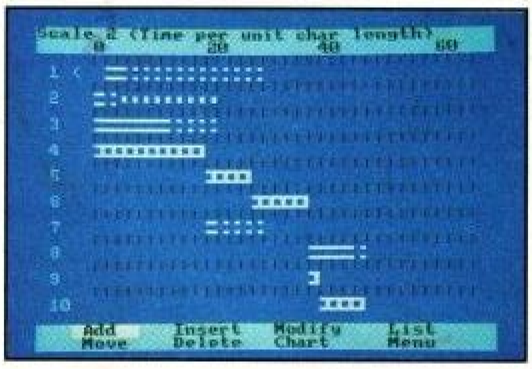
The applications package is very neatly done indeed. The network structure you learn in the training section is hidden in algebraeic form in your computer and the project is represented as a 'year planner' bar chart. An extremely versatile menu system allows you to enter individual activities easily, modify them or move them around quickly.

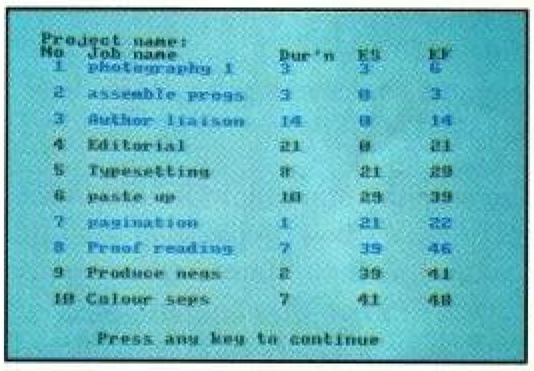
You can compile the list as you go along, inserting items you had forgotten, from which point of view it is extremely user-friendly. The program has two main 'pages', one with the list and details of the activities on, and the other the bar chart. You can move easily between the two and can edit and modify the data when in the bar chart mode. This I found extremely useful because you can instantly see the effects to the project as a whole when you make individual changes.

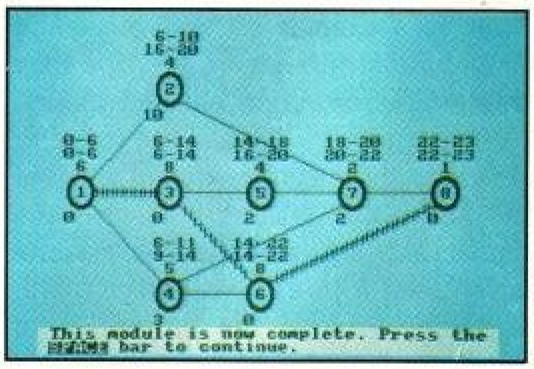
The great beauty of this package is the speed and friendliness of the whole design. Although it is a very substantial program with a lot of features, it is very quick to learn and easy to use which encourages you to use it regularly. I think I saved myself the cost of the computer on my first attempt with it, because you can tell exactly where you are and as deadlines approach you can reorganise your work to meet them. A separate module will produce for you a vast variety of printed reports and copies of the planning bar chart, so you can keep regular records of the progress of your project.

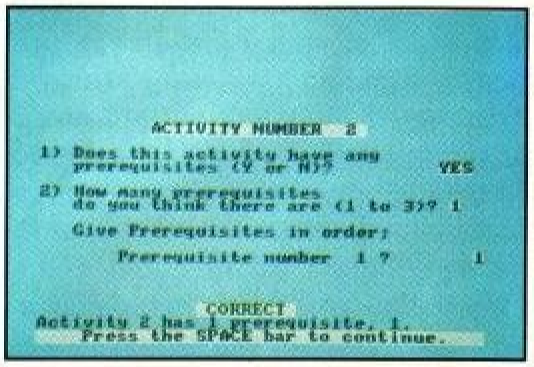
I gather that Amsoft themselves now use this to plan their work, and that there is a long queue of people waiting to snap up the first production copies; enough said. Even for me, I will now be able to 'prove' why I finished things late -and it won't be the fault of the program.











STAR WATCHER

An astronomy program seems a rather strange bedfellow to the other Brainpower titles. However, I found it as informative and engaging to use as I did the other three - and a great deal of fun. The formula is essentially the same as in the other programs, with a teaching and applications element. In Star Watcher, though, the training section is used to teach constellation and star recognition while the applications program can be used as a full-blown home observatory.

The tutorial begins by explaining the way the heavens are mapped and the co-ordinate system used to refer to stars. This is similar to the latitude and longitude system used to map the world and is made easier to understand by the clear diagrams which accompany the text.

Seeing Stars

The way the stars move is dealt with next; why they appear in certain positions at some times and how they move to arrive in different ones at others. Quite a lot of interesting detail on the history of astronomy is included, which makes the tutorial a very good primer on astronomy in its own right. There is a chapter on how stars and constellations are named and how they are classified by magnitude and colour.

The computer is used in the training section to show a succession of views of all 88 constellations. As in the applications program, the star views can be 'seen' from any location on earth; so having entered the latitude from which you wish to view, you are ready to start.

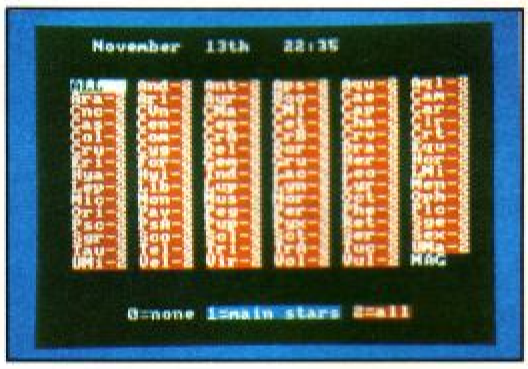
The constellation pictures are built up in an unusual and interesting way; the main stars of each constellation are shown first in a sky 'window' accompanied by essential data about the constellation. By pressing the space bar the picture is gradually built up to show where the constellation belongs in the sky; the subsidiary stars in the constellation are added next, then the key stars from the surrounding constellations are added and finally all the stars are plotted.

The best things in life are free

This is a unique and imaginative use of the computer/book combination, and an excellent example of how it should be done properly. You can look at individual constellations from different latitudes and get an idea of what it feels like to be somewhere else on the earth. There are some excellent self-test facilities which you can use having learned the characteristics of individual constellations. You can select one of four degrees of difficulty for these tests and I found it remarkably absorbing trying to get a perfect score.

One of the best things about star gazing is the simple fact that no-one has yet found out a way to tax astronomers whilst taking in the delights of the heavens. In a world where just about anything that's fun costs money, you can indulge in the stars for free! The applications program is an absolute masterpiece on its own. I have read the reviews of the Spectrum version of Star Watcher, all of which acclaim it as the best astronomy program on the market; one even refering to is as glittering! The CPC464 version has been enhanced considerably to take advantage of the superior machine specifications.

This program gives you complete control of the heavens from any place on earth, at any time and in any direction and there seems to be little you cannot do with it. The presentation takes the form of a sky 'window' with a data entry matrix and a selection menu. You enter the data about your location and time

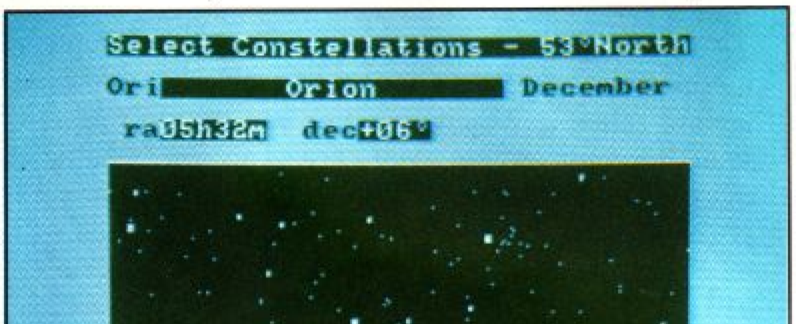


and the direction you wish to look (or the star co-ordinates) and the program will then plot your view of the stars.

The accuracy of the view is very high, individual stars being plotted to within half a degree. One of the menu options allows you to switch constellations on and off or choose to view stars of selected magnitudes. You can use this feature to isolate individual constellations of particular interest and the data display will show you where-abouts in the sky to find them.

There are some extremely powerful facilities which enable you to 'move' through the dimensions of time and space. For example you can set different start and finish points and the number of steps needed to move between them and then let the computer take over. Using this you can see how the stars change every night for a month, see what the sky looks like as you 'fly' around the world, or view a star panorama as though you were turning around on the spot. A real time plotting option makes use of the CPC464 clock, so you can set it up beside the real night sky to find out what you are looking at.

I found Star Watcher fascinating as an adult, and it seems an excellent medium to introduce children to both astronomy and computers at the same time. Not to mention a very practical demonstration of the occasionally seemingly pointless rigours of geometry! It is remarkably easy to use which belies the great power of the applications program. This package seems to be high on natural appeal and must be a sure fire hit for Christmas - and these long, long winter evenings.



■ CPC464 USER

CP/M: WP and DB on disc

A quick preview of the CP/M word processing and database software coming from AMSOFT.

* **MICROSCRIPT** - The powerful and sophisticated word processor which allows you to carry out both simple word processing and complex text handling.

* **MICROPEN** - A versatile information storage and retrieval system. Allows you to turn your data into the kind of information that is useful to you - accurate, up-to-date, well organised and easily accessed.

* **MICROSPREAD** - Flexible and easy to use spreadsheet which allows you, the user, to define the size of the spreadsheet required and also to enter both data and formulae in a friendly and easy to understand manner.

MICROSCRIPT

A simple to use wordprocessor (featuring disc buffering of document length) with a comprehensive range of functions:

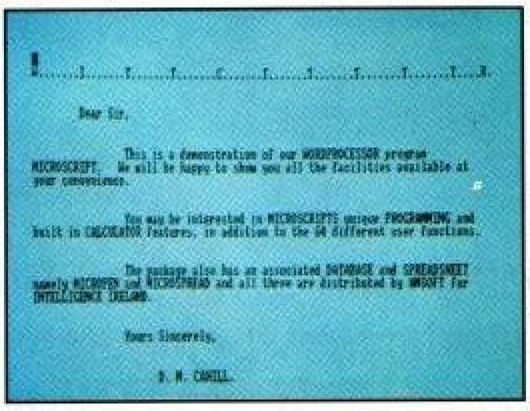
Microscript makes available 55 different functions for creating and editing text. These are programmed in to function keys or key combinations to put word processing power and flexibility at your fingertips.

These include:
Cut & Paste
Convert to capitals/lower case
Centre Text
Underline
Find Text, Find and Replace,
Find and Delete.

Furthermore, Microscript has a 16 digit calculator 'built in' with 5 functions:

Add
Subtract
Multiply
Divide
Percentage

The calculator performs both horizontal and vertical totalling using standard arithmetic operations. Microscript can be used for financial modelling and for complex circular letters with individual calculations.



Format 'rulers'

Microscript has the capacity to store 10 different ruler memories. These rulers define a variety of margins, indentations and word-wrap boundaries, as well as delineating the 'fields where calculation may take place. They can be easily modified to suit the requirements of different documents.

Merge

Microscript allows merging of stored text with the document being created, and additionally, Microscript can store a sequence of instructions which can be recalled for execution with a single keystroke. Thus standard routines can be easily generated.

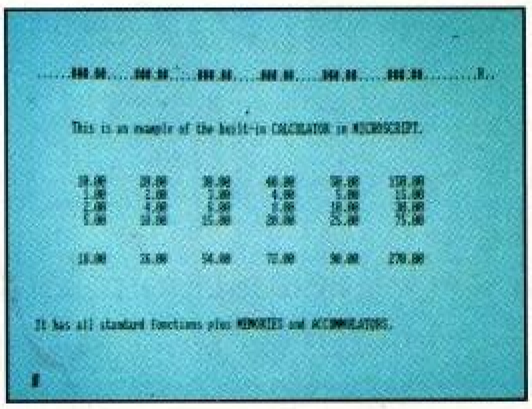
Print options

Microscript has many print parameters, 18 are basic print options which the user can modify or which default to set values.

The MICROPEN database

* Multiple file capability
* Micropen can handle as many different files of data as can be stored on your disk.

Each record can contain up to 100 different fields and up to 1,024 characters. A menu of options is displayed on the screen for ease of use by untrained personnel. Micropen is probably the most straightforward and user-friendly database system available under CP/M.



Information can be retrieved by using record numbers or key fields and can be displayed on the screen or printed in standard reports.

Micropen has a comprehensive indexing system for rapid file search. Each field in a record can be subjected to 6 different search tests.

MICROSPREAD

The worksheet can be of variable size -both in the numbers of rows and columns. Automatically assigns row and column identifiers. All cells easily identified and addressed.

A simple method of data entry into individual cells. Current cell location is always displayed. To enter a formula into a cell only requires a simple keystroke. Data and associated formulae displayed as the user passes from cell to cell.

Up to 60 cells displayed at any point in the operation. Both vertical and horizontal scrolling is allowed. Row and column indentifiers are always automatically re-assigned to reflect the current portion of the worksheet displayed.

Microcalc allows for all normal arithmetic operations - addition, subtraction, division, multiplication and percentage. Individual cells or ranges can be included in formulae.

Other facilities include a copy facility which allows you to copy data or formulae from one cell to another.

A 'clear' facility allows any cell, combination of cells or the entire worksheet to be cleared of data and formulae.

■CPC464 USER

If you hadn't already bought a CPC464, you'd have to kick yourself.

Because you wouldn't be able to run **AMSWORD**, the most fully featured home micro wordprocessor program, now available with all the enhancements possible with the CPC464 - and only £19.95 inc. The acknowledged masters of low cost word processing software have produced a masterpiece on the CPC464.

"The CPC464 was a revelation. A delight to work with"

- said Robin Thomson of Tasman Software. So it's not surprising that the CPC464 coaxed the best from Robin Thomson, is it?



AMSWORD (Soft164)

Bring out the best in your software.

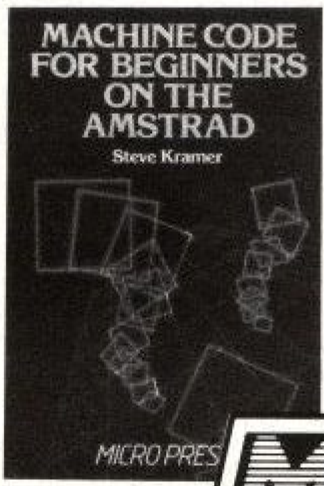
AMSTRAD CPC464

PROGRAMMING YOUR AMSTRAD CPC 464

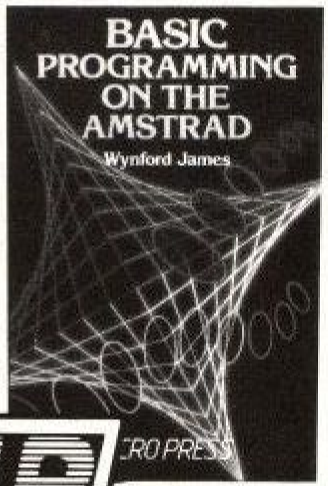
Machine Code for Beginners on the Amstrad

by Steve Kramer

This book is intended for the beginner and explains the concepts behind programming in Machine Code, the instructions which the Z-80 CPU understands and how to use them. The operating system routines are introduced at appropriate stages and extensive use is made of them in order to allow results from programs to be seen immediately.



£6.95



MICRO PRESS

£7.95

BASIC Programming on the Amstrad

by Wynford James

Designed for beginners, this book builds up your BASIC competence and confidence to write structured programs in the simplest and most efficient forms. It includes program examples which are useful in their own right; colourful graphics programs; games programs; and a database program using cassette files and many more.

Available from Booksellers or direct from the Publishers.

Orders to: **Micro Press, 27 London Road, Tunbridge Wells, Kent TN1 1BX Tel. 0892 39606**

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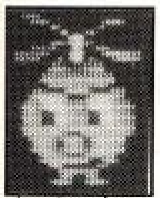
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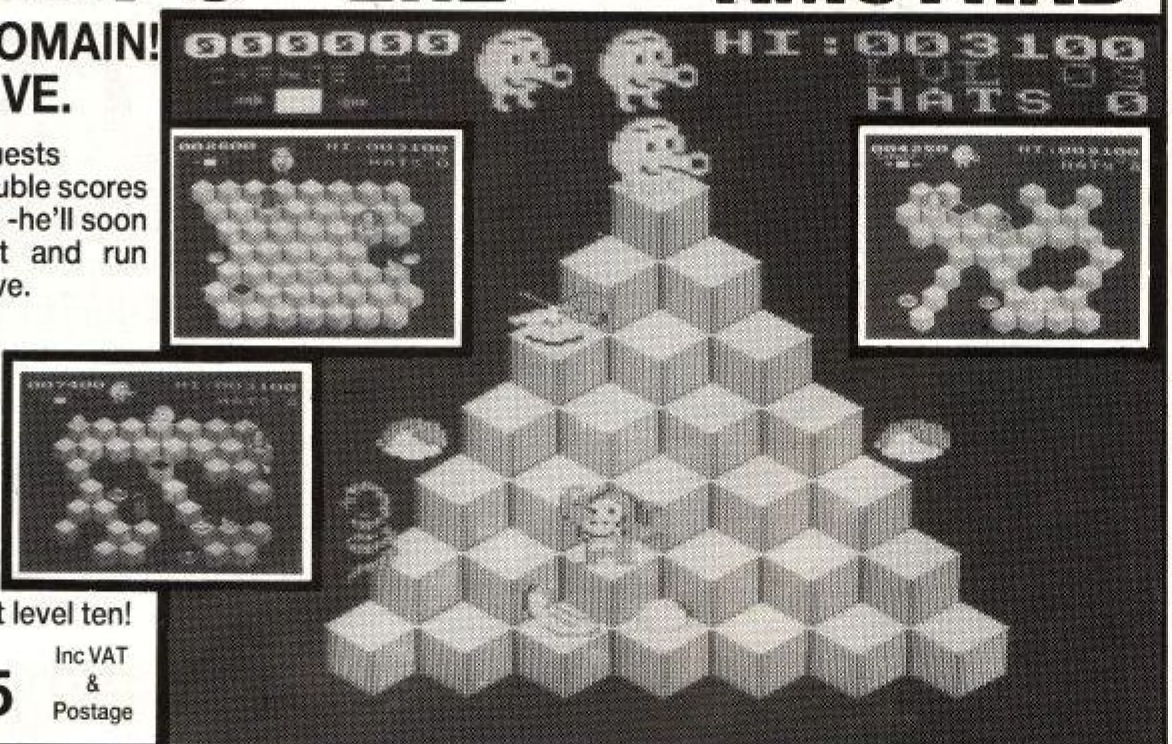
Signature .... Date ....

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- ★ Escape when it gets tough - by transporter disc or rota hat, but only if you've earned one.
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*Full Z80 disassembly
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AMSTRAD CPC464

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CPC464 USER. Oct '84

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NUMBER 11

NUMBER 11. Previously econimic simulation games have tended to be dull. Not this one! Great sound and graphics, battle for re-election with a chance for a coalition if you don't earn an overall majority, and grab a knighthood if you can. Outstanding value at £5.50 inc. p.p.

SOFTWARE FOR AMSTRAD CPC464
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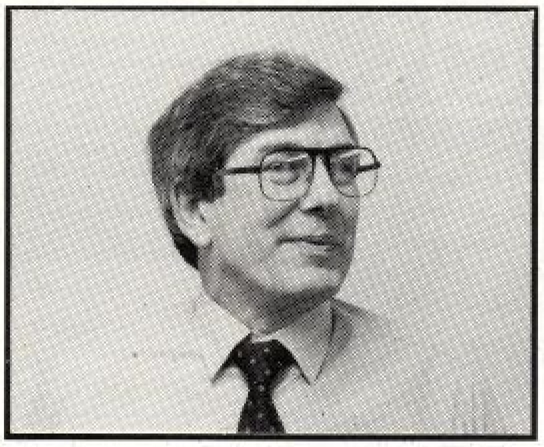
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SOFTWARE REPORT

The Amsoft range of software has developed rapidly since its introduction and now covers over 100 titles. Marc James spoke to Mike Mordecai the man in charge of distribution and sales.



The Charts....

No magazine is complete without one.

Amsoft top 25

October 1984

This month	Last	Move	SOFT	Title
1	2	▲	SOFT117	Roland in the Caves
2	1	▼	SOFT129	Codename MAT
3	3	◁	SOFT118	Roland on the Ropes
4	6	▲	SOFT169	Roland goes Digging
5	5	◁	SOFT136	3D Invaders
6	9	▲	SOFT170	Roland in Time
7	4	▼	SOFT112	Harrier Attack
8	11	▲	SOFT125	Chess
9	7	▼	SOFT135	Hunter Killer
10	8	▲	SOFT144	Electro Freddy
11	N/E	◆	SOFT199	Roland on the Run
12	14	▲	SOFT185	Amsgolf
13	17	▲	SOFT126	Laserwarp
14	N/E	◆	SOFT197	Screen Designer
15	15	◁	SOFT114	Spannerman
16	13	▼	SOFT196	Galactic Plague
17	10	▼	SOFT146	Admiral Graf Spee
18	12	▼	SOFT177	Spacehawks
19	N/E	◆	SOFT192	Roland Ahoy
20	25	▲	SOFT119	Home Budget
21	22	▲	SOFT166	Cubit
22	20	▼	SOFT149	Crazy Golf
23	19	▼	SOFT150	Punchy
24	18	▼	SOFT121	Gems of Stradus
25	N/E	◆	SOFT187	Classic Adventure

MJ: *Tell me Mike, what's the philosophy behind the development of software?*

MM: Our main objective is to source quality software that will cover a broad range of interests and above all highlight the machines capabilities.

MJ: *Both existing and potential owners will want to know: Once the software is developed, how wide and extensive is the distribution network?*

MM: Distributing software is a mammoth task requiring the support of 16 different distributors including Websters, Centre Soft, Microdealer, TBD and Warwick. With these distributors we currently cover most of the country selling through major multiples and independent dealers. Some of the distributors only pick the very best titles, but the ones I've named (accounting for 75 per cent of our sales) carry the entire range.

MJ: *What about the Christmas rush - are you confident that dealers will have enough software?*

MM: Yes, we have planned well for Christmas, booking duplication and printing on all titles so that we have sufficient stocks for the anticipated user base.

MJ: *With Disc Drives available in December what can users expect from Amsoft?*

MM: Firstly they can expect disc versions of most of the current range of cassette based software and secondly a wide range of low cost business software covering word processing, accounting, record keeping etc.

MJ: *What about all those users out there who have already bought cassette based software but want disc versions?*

MM: They can return the cassette to Amsoft together with £4.95 (the price of a blank disc) and Amsoft will provide them with the same piece of software on disc.

MJ: *What are Amsoft's plans for the future?*

MM: Obviously to continue to source new and exciting software by exploring every interesting development. We are always looking for new ideas from both users and conventional sources.

■ CPC464 USER

The Lucky Winner

(The results of the second User Club Software Competition)



Martin Fryer of Wolverhampton picked up the £2000 prize in the second CPC464 Users' Club competition with his program, 'Cock Robin'. The program is an arcade style presentation featuring birds, worms and lawnmowers -all subjects close to the heart of Amstrad Sales Director and CPC464 User treasurer, Dickie Mould who is pictured here parting with the cheque to the lucky Martin.

When he came to collect the prize with his two brothers, Martin immediately ordered a DMP-1 an DDI-1 disc system with the proceeds, and intends to enter the next competition armed with these new productivity aids. Jeff Minter beware!

Runners Up

Always remember that although there's the Big Prize for the outright winners, other worthy entries can still be turned to into cash as listings in CPC464 User, and in some other publications we are planning. Some may even see the light of day in Amsoft livery on the shelves of your local dealers.

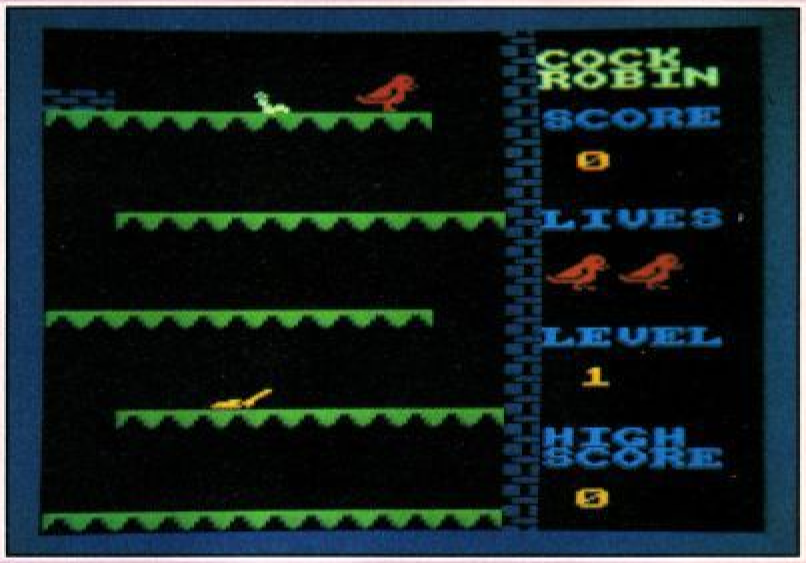
It's very difficult to separate entries for the 'placings', especially since the nature of programs varies so enormously. We are keen to encourage business, educational and utility software - and this approach seems like one of the better solutions.

So keep those entries flooding in. And if you are not lucky enough to be a winner, then it would help us if you have already indicated whether or not you are prepared to let us publish a listing of the program. We generally pay between £50 and £300.

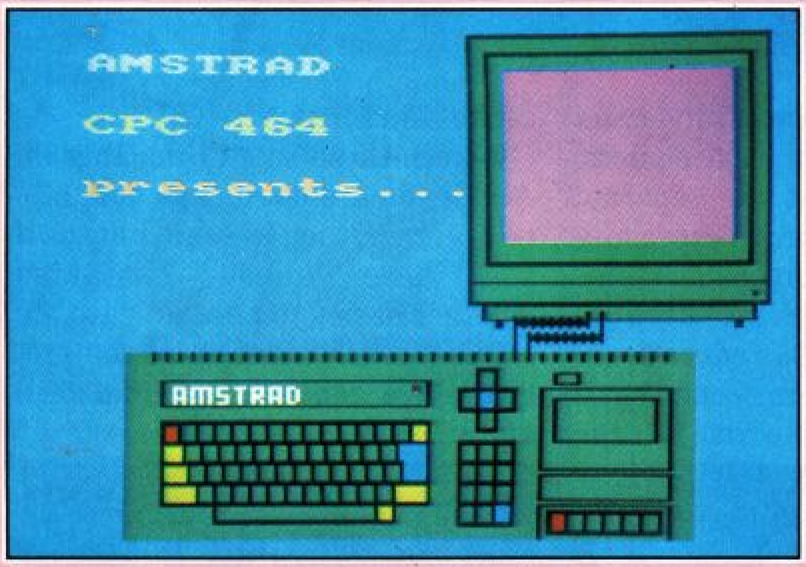
The Grand CPC464 USER CLUB*
£2000 Software Competition -



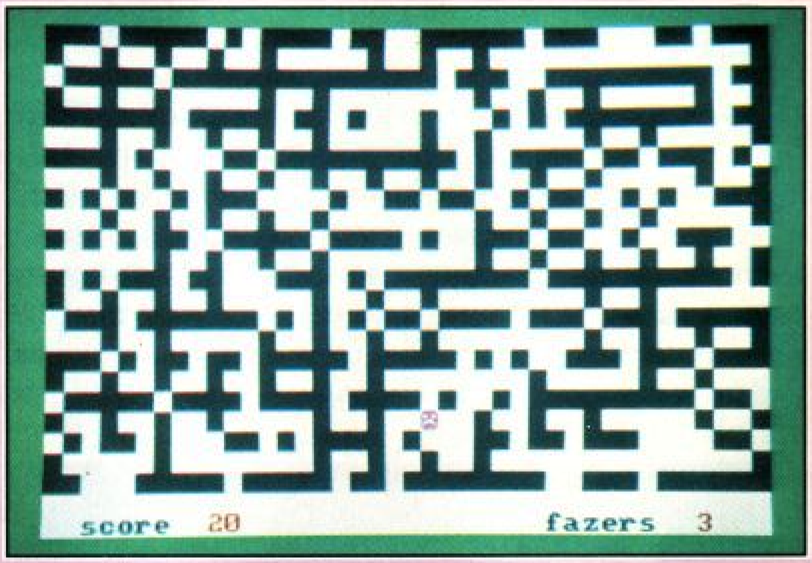
Electric Eddy-Roger Bowles-Stockwood-Bristol



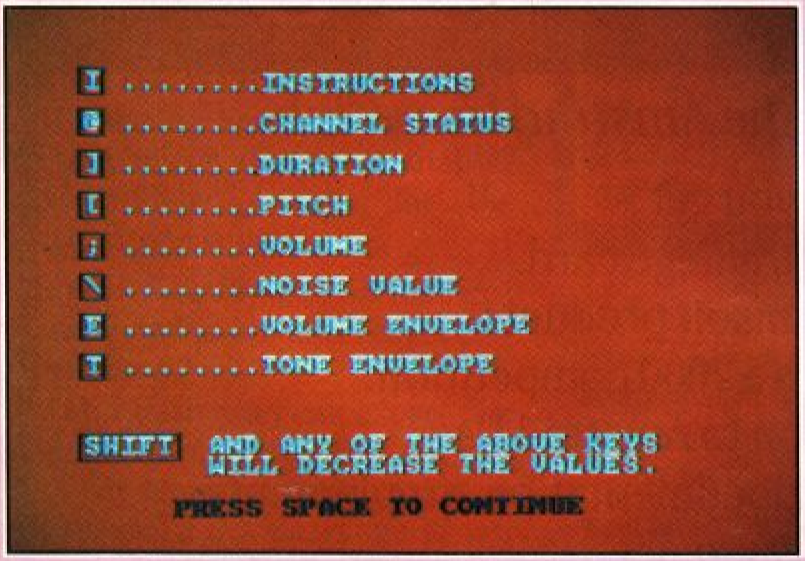
Cock Robin-Martin Fryer(Wolverhampton)



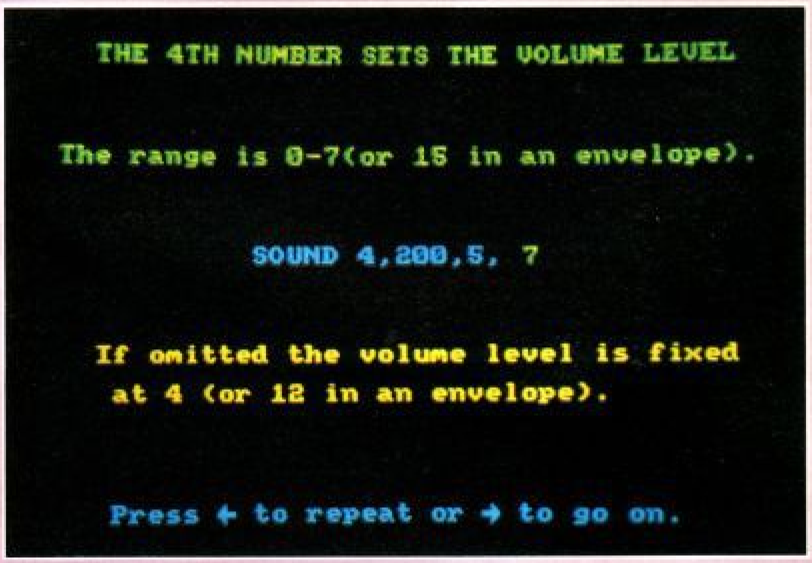
Flashman-Philiph Evans(South Glamorgan)



Flashman - Philip Evans (South Glamorgan)



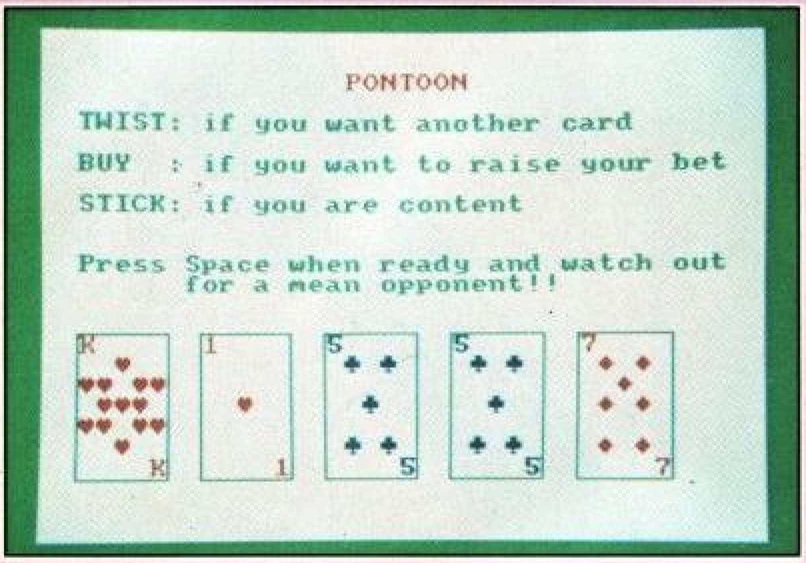
Sound Teacher-HC.Stidwill(Birmingham)



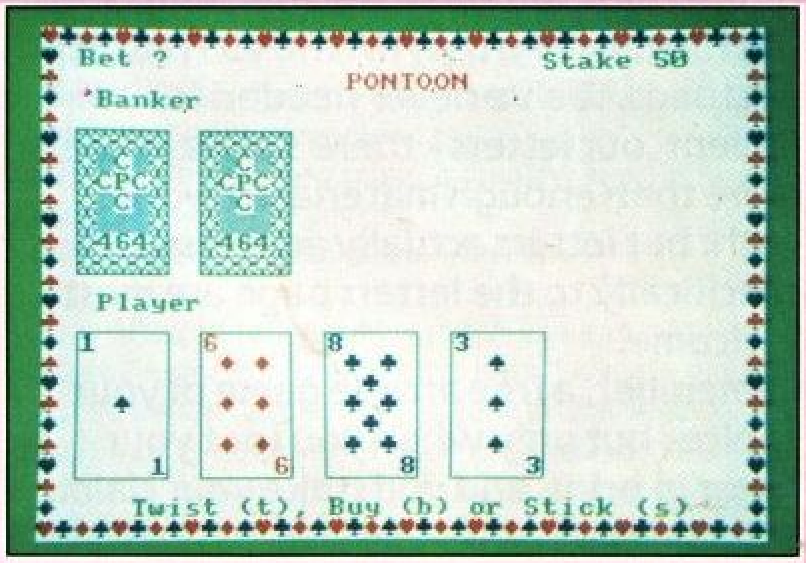
Sound Teacher-HC.Stidwill(Birmingham)

**You've got to be in it to win it! Details of membership on application*

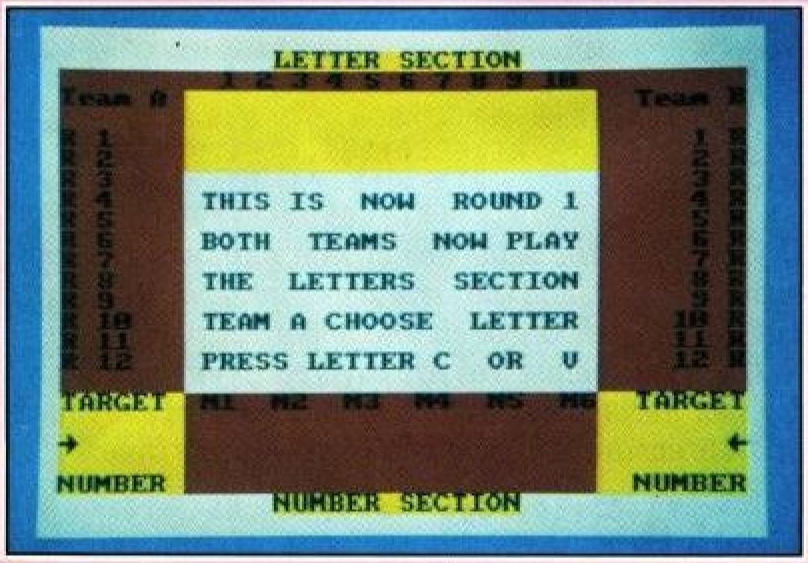
a selection of screens



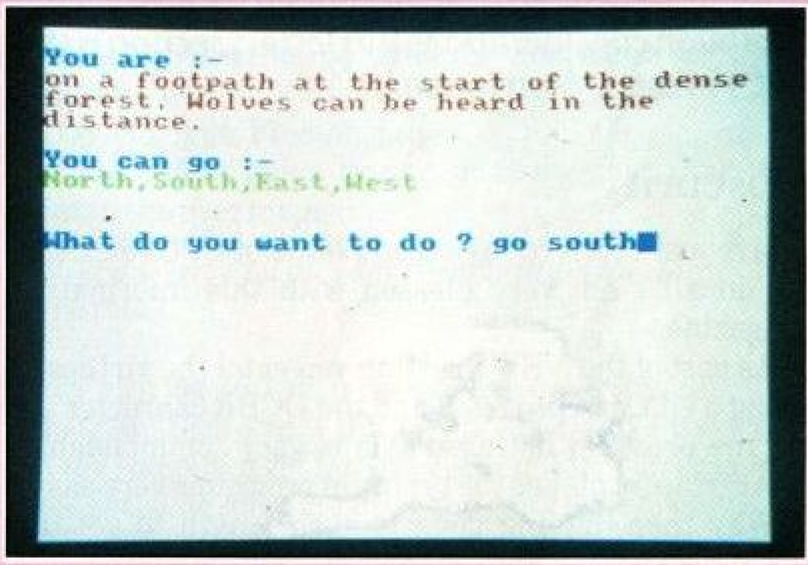
Pontoon-Johnie Atherton(Shrewsbury)



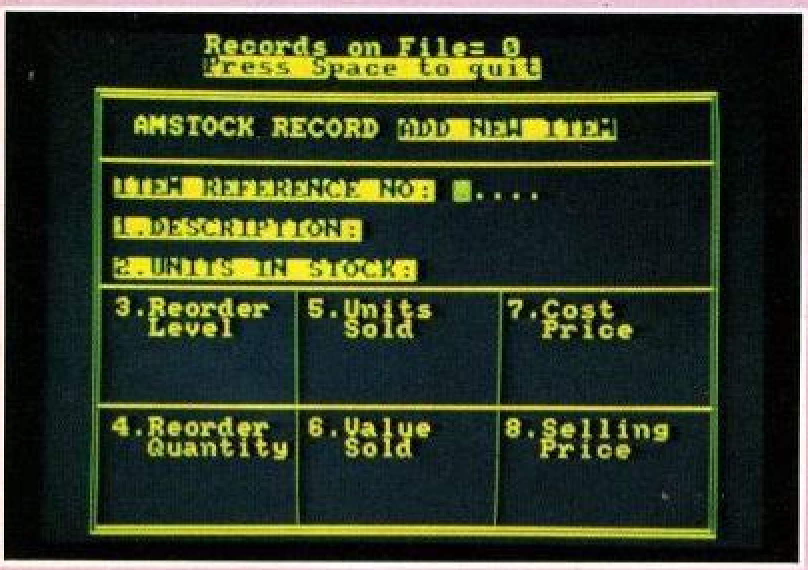
Pontoon-Johnie Atherton(Shrewsbury)



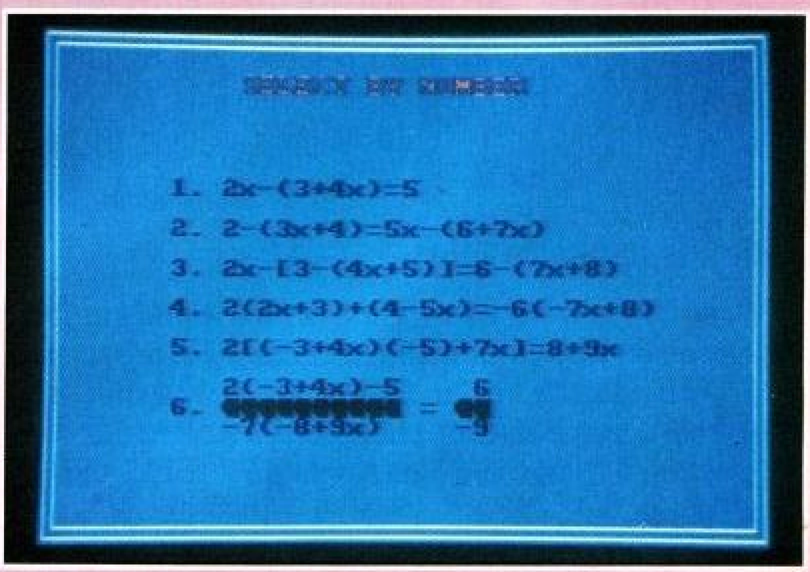
Countdown-Kevin Dixon(Batley)



Adventure-S.W. Lucas(Cheshire)

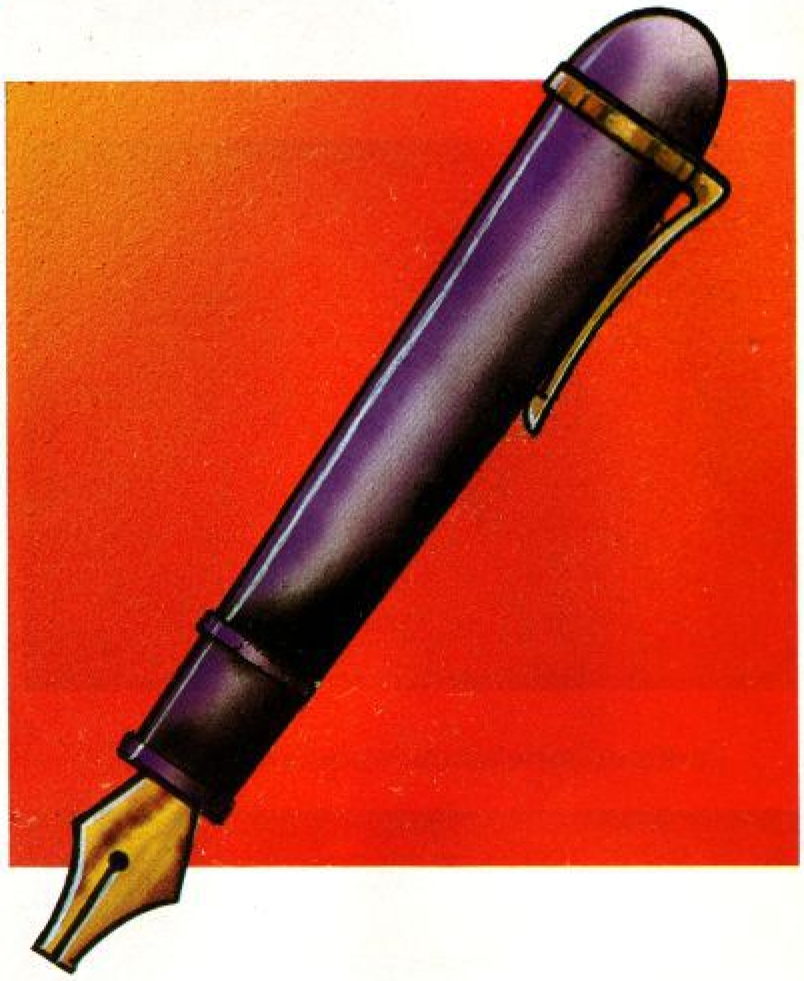


Stock Control-Mr Peacock



Algebra Tutor-Mr Hall

Letters



At last! Real letters to the user mag, and not filched from the AMSTRAD/Amsoft postbags. We've never needed to 'invent' our letters - there's always been more than enough material to work with: but letters actually addressed specifically to the letters page are most welcome.
Remember, a free arcade game of your choice : but only when you spot your letter in print, and you stake your claim.

Please bear in mind that the views expressed herein are not necessarily those of Amstrad or Amsoft. Be assured that all your views are given thorough consideration. This letters section is the CPC464 users' own forum.

Obscurity

I have just received my second issue of CPC464 User. All in all I am very pleased with this informative magazine.

As part of the NEWS section you extol the virtues of using a CPC464 program and the OCBR character set for the program listings. This is very commendable, and certainly makes the typing of programs very easy.

Why then, having gone to such length to get the listing correct and clear, do you then obscure them with deep colour background or heavy motives (See pages 31, 41 and 47)

While I can see the need to brighten up the copy, could this be done with light colours, and by adding illustrations in the areas where there is no listing text? I feel that this would allow the best of both worlds, eye catching and useable.

Yours a happy CPC464 user,
Chris Hill, Chelmsford

CPC464 User: Well, we all thought we would get it in the ear when we saw how the Kingdoms listing turned out. And what's even more embarrassing, the 'infallible typeset listing' choked on a bug in our text processing software that converts all backslashes to fixed spaces.

Oh horror. And what's more, the venerable 'Wordstar' did some rude things to the 8th bit on a couple of carriage return characters which caused our typesetting system to ignore them when printed.

If you follow the sequence of line numbers it's easy enough to spot, and the error message is plain enough: but we really should be character perfect.

The lines themselves are covered in our new Foul-Up spot in the news section, and there has been much effort to ensure no repeat performances this time.

Clock this:

Firstly I would like to thank your magazine, Amstrad and Amsoft for producing such a mega-amazing product and follow up. I've had several other computers before the CPC464 and I can definitely say it's the best computer and best service on the market.

I enclose a copy of 'Inter Clock' ('Inter' because it's interrupt driven, a useful feature) which I wrote yesterday after experimenting with circles and the like.

After the ENTER HOURS prompt enter the number of hours in 12 hour format (ie for 12 type 12). Enter the minutes in the range 0-59, and the clock face will be drawn and begin to tick. 4 seconds is added to compensate for the time taken to draw the clock.

There's an hourly chime (eat your mainspring out, Big Ben!)

Mark Payne, Norwich

```
10   REM *******************************
20   REM *******************************
30   REM ****I-N-T-E-R-----C-L-O-C-K*****
40   REM *******************************
50   REM *****BY-MARK-PAYNE-ESQUIRE******
60   REM *******************************
70   REM *******************************
80 MODE 0:BORDER 1:INK 0,1:INK 1,24:INK
   2,6:INK 3,9
90 LOCATE 5,1:PRINT "INTER-CLOCK":FOR
   f=1 TO 20 :PRINT CHR$(208);:NEXT:
   LOCATE 1,4:PEN 2:PRINT
   "PLEASE ENTER :"
100 LOCATE 1,6:INPUT "HOURS";hours:IF
    hours <1 OR hours >12 THEN 100
110 LOCATE 1,8:INPUT
    "MINUTES";minutes:IF minutes <0 OR
    minutes >59 THEN 110
120 LOCATE 1,10:INPUT
    "SECONDS";seconds:seconds=seconds+4:
    IF seconds-4 <0 OR seconds >59
    THEN 120
130 MODE 1:t=0:s=270
140 h=270+(hours*30)
150 m=270+(minutes*6)
160 s=270+(seconds*6)
170 CLS
180 :PEN 1:n=1:FOR f=300 TO 630 STEP
    30:DEG:TAG:MOVE 294+170*COS(-f),210
    +170*SIN(-f):PRINT n;:n=n+1:NEXT
190 FOR f=270 TO 660 STEP 6:DEG:PLOT 320
    +152*COS(-f),200+152*SIN(-f),1:NEXT
200 FOR f=270 TO 660 STEP 30:DEG:PLOT 320
    +154*COS(-f),200+154*SIN(-f),2:NEXT
210 ENV 1,127,-1,7:SOUND
    1,400,50,15,1,15
220 EVERY 50 GOSUB 320
230 DEG:PLOT 320,200:DRAW 320+140*COS(-
    s),200+140*SIN(-s),3
240 IF t=1 THEN PLOT 320,200:DRAW
    320+140*COS(-s),200+140*SIN(-
    s),0:s=s+6:t=0
250 PLOT 320,200:DRAW 320+105*COS(-
    h),200+105*SIN(-h),1
260 PLOT 320,200:DRAW 320+125*COS(-
    m),200+125*SIN(-m),2
270 IF s=630 THEN PLOT 320,200:DRAW
    320+125*COS(-m),200+125*SIN(-
    m),0:m=m+6:s=270
280 IF m=630 THEN PLOT 320,200:DRAW
    320+105*COS(-h),200+105*SIN(-
    h),0:h=h+15:m=270:ENV 1,127,-1,9:
    SOUND 1,400,65,15,1,15:SOUND
    2,500,65,15,1,15:SOUND
    1,600,65,15,1,15:SOUND
    2,700,65,15,1,15:l=0
290 IF l<>0 THEN 310
300 IF m>450 AND m<630 THEN PLOT
    320,200:DRAW 320+105*COS(-
    h),200+105*SIN(-h),0:h=h+15:l=1
310 GOTO 230
320 t=1
330 RETURN
```

Junior keyboard ops

I am writing to congratulate you on your new magazine, it is very, very good. The best bit, for me, was the program section. Previously I didn't have any programs to type in but now I have three or four to keep me busy. Me and my dad found 'Bomber' an addictive game, while the new 'Pontoon' was a big improvement on the one in the Basic Manual. Another section of the magazine I enjoyed were the games reviews. These help a lot when buying software especially the screen photos.

All in all the magazine is really excellent and thoroughly worth 95 pence.

James Gore, (11), Saltburn, Cleveland

I am writing to tell you how much I like my Amstrad CPC 464 home computer. I am only 11 years old but the instructions are so easy to follow that I can teach myself how to do things. I have only had the Amstrad for three weeks and already I can draw lines, do sounds and do border, pen and paper colours. The graphics are fantastic. I like the idea of giving a badge away if you get a certain score on Star Commando.

It is helping me a lot in my computer work at school.

After seeing ours, our next door neighbours are getting an Amstrad CPC464 for Christmas for their children.

David Briggs, Preston, Lancs

P.S. I really enjoy typing in the games that you print in the user magazine.

CPC464 User: Tell all your friends to get one for Christmas.

I am writing to say how much I enjoy reading the Amstrad Magazine, I think it is excellent. I have not got my computer yet but I'm getting it for Christmas. I have got some software for it and can't wait to play it.

The CPC 464 is my first computer, I was going to get a Spectrum last year but I'm glad to say I did not. I am a member of the CPC 464 club but I am too young to have my own card, so I have to buy software through my dad's name.

When I get my computer I will write to you again. I don't think I will write a boo hiss letter because I know you have to go a long way to beat it, even then they would be equal in value.

J L Lycett (13), Wakefield, W. Yorks.

Hopping mad

I am writing to congratulate you on your Mag. I found it nicely laid out with very interesting reviews in fact the only complaint I have is that the listings for KINGDOMS had a large red emblem printed across it. As I find it extremely hard to type while reading, this only makes things worse still.

I would also like to inform you that I bought Roland in the Caves but found that on the fifth sheet it stopped due to the data being exhausted in 750, so that I have to reload the game, I would like to know if there is anything I could do to correct this.

P Bickerdike, Leeds

P.S. The cheat button has been left in which is shifted A, to take you to the next sheet.

CPC464 User:If you can get to to the fifth sheet on Roland in the Caves without any chicanery, then you win the star prize: a box of fleas. You too would be exhausted if you got to level 5 the hard way, believe me!

Love/hate

I have just received issue two of the CPC 464 User and feel compelled to contribute towards the fan/hate mail section after reading the letter from G Sinclair and your response which asked for more independent input.

A moan: It is now about six weeks since I applied for membership and simultaneously placed orders for several goodies. I have received none of these to date and the arrival of issue two of CPC 464 User is the only response or correspondence I have had from Amsoft. Does the arrival of issue two mean that I have been accepted as a member and I can expect my membership card and goodies to eventually arrive (shades of Uncle Clive and the infamous 28 days delivery!) or is CPC 464 User being sent free? You failed to answer a similar question about circulation when asked by G Sinclair!

A second moan: I've been reading computer magazines for a few years now and during that time I've often been annoyed with the presentation of program listings. Rarely does the editor ensure that listings are easily readable for the poor old Key Basher. Take for example the Software File section of 'Your Computer'. Some of the listings are so minute it is near impossible to even decipher them let alone read them and type them in at the same time.

CPC 464 User, so far, has not been guilty of trying to set a program onto an area the size of a postage stamp but instead you have attempted to obliterate the listings with pretty pictures. Just let the editor, or his staff sit at a terminal and try typing in the Kingdoms and Bomber programs without becoming a little bit frustrated by the pictures they have spread across the listings. They are indeed very nice pictures but a damned nuisance. Most Keyboard Bashers are straining the eyesight enough without you trying to make life more difficult. Remember if we all end up blind your circulation may suffer and who knows, you may end up looking for another job and you will only have yourself to blame.

Yet another moan: (How dare I?) You have only reached issue two and already dimensions of the magazine have been changed.

I'm all for increasing the amount of information content and the number of pages but surely we're not going to have continually varying sized magazines at each issue! Variety may be the spice of life but its making my bookcase look rather untidy already.

And now just a touch of praise: I think the User Club and magazine are a great idea and despite the criticisms I hope to be subscribing for many years to come. I am also delighted with the CPC464 and think it is great value for money and an excellent machine.

I'm now eagerly awaiting issue three, my membership card, the Concise Firmware Spec., the Concise Basic, the printer, the joystick, etc, etc, etc, etc.

P W Hutchinson, Harlow

CPC464 User: Ho-humm... Firstly, the processing of orders has been speeded up - or so my Amsoft spies tell me. Anyone experiencing delays beyond the 21 days quoted should certainly chase up their orders.

User Magazines are not sent FOC to non members. This was something we did with the first issue to get the ball rolling. Owners submitting guarantee cards get a sample issue as part of the 'Join the Club' tout: but this will be an out of date issue when we actually have some old ones left over to send!

As for the size of the magazine: we never guessed we would be producing a fully fledged bookstall User Magazine so soon. Would you rather we reverted to the original size and format? We rather doubt it!

Disconnected

In the QA section of your October/November issue, you answered a question about a printer that insisted on producing double space lines. 'Simply' you said, 'cut the connection to pin 14 on the Centronics plug.' Simply? I looked at the plug on my machine and could see no way in which I could cut the right wire, without running the risk of also cutting the wrong one. Yet I have the same double space problem with my Kaga Taxan KP 810 printer as your other reader had with his Shinwa CP80.

Then I had the brainwave. Why take the drastic and irreversible step of cutting anything? I took a narrow sliver of Sellotape and carefully manoeuvred it over the edge connector at the back of the computer until, with the aid of an orange stick, I could press it down over the fourth connecting strip from the left - pin 14. Re-connect the printer plug, and presto! - my double space problem was cured.

Incidentally, a few words of praise for Tasman Software and the Amsword Word Processing program. I received an early test-site version, which still had a few bugs; but Robin Thomson replaced this and the final version is now, in my view, quite brilliant. I do not believe there is anything to touch it, on the home computer market, for flexibility, range of features, speed of operation and user-friendliness. All it needs now is the disc drive!

John Chapman, Woking, Surrey.

No offence?

As this is my first letter to a Magazine I hope that it is not offensive in any way to anyone but I hope that the criticisms I have are helpful to someone.

First of all I bought my CPC as soon as I could because, as anyone weighing up the facts must realise, that a computer (with a real keyboard), cassette recorder and a monitor for £229 is an absolute bargain. Also, I joined the User Club as soon as I could, because being unemployed the advantages offered easily outweigh the annual fee of £20. As I intend to buy a disc drive as soon as they are available this will pay off, as the disc drive usualy costs £200 but with the discount only costs £170 saving me £10 straight off plus having a magazine etc. in the bargain as well.

Now some other points. Your magazine seems to always be putting other personal computers down. Ok the CPC is one of the fastest best value machines around but if it were not for computers like the Spectrum for instance (which in its day was excellent value) then maybe the CPC would not have come about.

My main criticism is the price of software. Staying with the Spectrum, this particular computer had cheap software back up with it from the start and I believe this was the major point for the Spectrum's success. If you look at the software for the CPC it's only the same as the Spectrum's yet it is at least £2.60 dearer, £4 without the user club discount. Ok I'm unemployed and money is scarce - but so are a lot of other people in this country - so please try and cut software prices to around £5 at least, I'm talking about general software like games etc, if not before Christmas, then early in the new year and I think that the CPC will be the best micro with the best backup ever.

One other thing I'd like to see is a bit more detail when advertising things like the 'Teach yourself Amstrad BASIC Part 1', as I went out and bought it only to find that the excellent manual supplied with the CPC was enough, and I need not have spent £17 on something I already had, practically.

I thought I must write this letter to try and help keep an excellent machine and magazine going, but please don't forget about the unemployed of this country as we like computing as well.

N V J, Birkenhead, Merseyside

CPC464 User: This raises several interesting issues.

We thought that we were reasonably fair to competitive computers: they have enough problems of their own without us adding to them.

We have many users who are not working for either reasons of unemployment or retirement. And far from the popular press image of whizz kids with Ferraris, we have more whizz-OAPs pounding the keys than you might imagine.

But when you think about it, computing is just what the doctor ordered for retired people: mental stimulation and a powerful interest to keep you going.

We would like to be able to assist financially, and so far, we don't think we've done a bad job providing a reasonable basic means of computing at the most competitive price - albeit the £229 mentioned is a shade historical in view of the see-saw exchange rate policy condoned by the Bank of England.

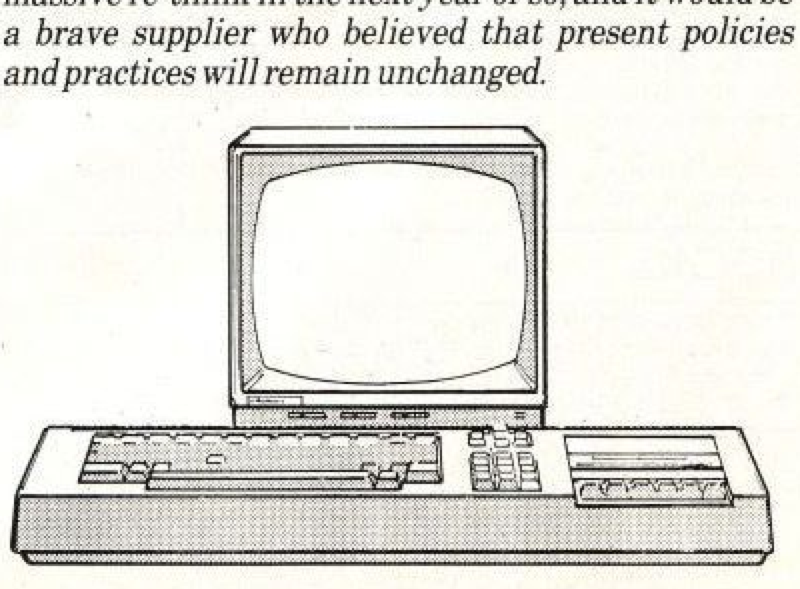
We rather doubt if computing will ever be made available through the state welfare system - although it is very arguable that a good dose of computing is a far more appropriate remedy for the ailments brought about by old age, depression and the pressure of the 20th century.

But it's certainly worth a letter to your MPs to remind them that the computer interest lobby is alive and well. Social Service spending could well do a lot worse than be used to install computers in retirement homes, and to help subsidise the acquisition of computers with the capability of 'serious' applications by the redundant and unemployed.

The press is full of the scandalous misuse of these types of funds - wouldn't it be pleasant to see councils spend £6m installing computers in pensioners' day centres and libraries, rather than spending it on promoting those dubious events that seem almost too incredible to be true?

It's only fair to point out that most of our conversions have incorporated many additional features: AMSWORD/TASWORD464 being a prime example. If you choose to compare with the BBC/Electron prices, we don't think that we are being unreasonable.

It seems possible that one of the reasons we are attracting so much software at the present time is the fact that independent vendors are able to earn a living margin. Despite all the hoo-hah about costs of software, you will have noticed that more than a couple of software houses have slid beneath the waves during the past year, so it isn't necessarily the Golden Goose many might Imagine (forgive the pun). The whole software vending business is set to go through a massive re-think in the next year or so, and it would be a brave supplier who believed that present policies and practices will remain unchanged.



Directory

Here's some of the software we've been sent for the CPC464. Please excuse the disorderly classification in this second issue: hopefully we'll have got a slightly tidier act together by the next time?

Please contact the vendor directly for further details. Please note that CPC464 User runs this listing as an information service to readers and accepts no responsibility or liability whatsoever for the software. *Caveat Emptor.*

Prices shown include VAT to the best of our knowledge. We reserve the right to refuse admission to list.

Vendor	Program title	Description	Cost
Eborsoft, 81 Hull Road, York YO1 3SS	**Dice Games**	Simpler for under 10 player's	**£11.00**
Pride Utilities, 7 Chalton Heights, Chalton, Luton, Beds LU4 9UF	**Zedis**	Editor and Disassembler	**£6.95**
N Attwood, 25a Albemarle Road, Churchdown, Gloucester	**Pontoon**	Card game with sound	**£3.00**
David Computer Software, 38 South Parade, Bramhall, Stockport	**Math's and Physics**	O-Level	**£6.00**
	Sound Effects	Bells,Horse'e etc	**£5.00**
	Printer Package	Typewriter Facility on screen	**£5.00**
	Arnold Answers Back	Conversation Program	**£5.00**
	Agent 007	Secret agent	**£5.00**
	Entrepreneur	Manage a company	**£5.00**
	Beanfeast	'Beans' Boardgame	**£5.00**
	Stock control	Stock controling	**£6.00**
	Report writer	Word Processor	**£8.00**
	Data Bank	Database	**£10.00**
	Invoice Control	Records invoices etc	**£6.00**
	Club secretary	Names and Address manager	**£10.00**
	Sundry Creditors	Balances	**£6.00**
Cable Software, 52 Limebury Road, Luton, Beds	**Trace Race**	Arcade reaction game -includes two player twin joystick option	**£6.95**
Timeslip Software, Stoneyburn Workshop, The Old Primary School,Main Street, Stoneyburn, West Lothian	**The Moors Challenage**	Board Game	
	The Royal Quest	Adventure Game	
Haresoft Micro's, P O Box 365, London, NW1 7JFD	**Hareraiser**	Treasure Hunt with prize	**£8.95**
Camel Micros, 33a Commercial Road, Weymouth, Dorset	**Grasp**	Graphic data presentation	
Nemesis Software, 10 Carlow Road, Ringstead, Kettering, Northants NN14 4DW	**The Trial of Arnold Blackwood**	Adventure	**£5.50**
	Arnold goes somewhere else	Adventure	**£5.50**
Solid Software, 35 Melville Road, Bispham, Blackpool, FY2 9JF	**House of Horrors**	Graphics adventure with arcade elements	
Spectradraw (Dept CU), 1 Cowleaze, Chinnor, Oxford OX9 4TD	**Amstradraw**	Pools prediction program	**£9.95**
Evesham Micro Centre, Crown Courtyard, Bridge Street, Evesham, Worcs	**Speedmaster**	Tape backup utility	**£9.95**
Terry Soft, 29 Woodbridge Road, Barking, Essex	**Matchmaker**		**£5.00**
	Testmaker		
	Potluck		
	Dragon		
	Pontoon		
	The Holy Grail		
Viking Software, 10 Russell Street, Scarcroft Road, York. YO2 1NW	**Vortext**	Word Processor	**£7.95**
	Card Index	User Definable, Records-Mini, Database System,	**£5.95**
	Character Builder,	Character Generator	
			£5.95
CDS of Doncaster, Silver House, Silver Street, Doncaster, South Yorkshire, BN1 1HL	**Steve Davis Snooker**	Arcade Game	**£7.95**
Pam Whitby, Addictive Games, 7A Richmond Hill, Bournemouth, BH2 6HE	**Amstrad Football Manager**	Arcade Game	**£7.95**
Alligata Software Limited, 1 Orange Street, Sheffield, S1 4DW	**Blagger**	Arcade Game	
Interceptor Micro's, Lindon House, The Green, Tadley, Hampshire	**Forest at Worlds End**	Graphics Adventure	**£6.00**
P Sheriff, 2 Marfield Road, Hale Barns, Altrincham, Cheshire, WA15 0SQ	**Data Base**		**£3.00**
Wicca.Soft,107 Bollington Road, Bollington, Nr.Macclesfield, Cheshire, SK10 5EL	**Crystal Theft**	Real Time Adventure	**£7.99**
David Computer Software, JR & DE Loverseed, 38 South Parade, Bramhall, Stockport, SK7 3BJ	**Machine Code Monitor**	Provides facilities to write, list, modify, save, load and run code programs, read headers, find code sequences and compare code blocks for differences.	**£8.00**
	Amstrad Unlocked	Makes back-up copies of BASIC	**£5.00**
	Back-up-Copier	Utility to create, update and print a pricelist for a	**£7.00**
L P Daly, 'Brookfield', Bridgland Avenue, Menston, Ilkley, Yorkshire, LS29 6PD	**Pricelist**	Fish and Chip Shop.	**£3.00**
Peter Noblett, Dean Software, PO Box 1, Mitcheldean, Gloucestershire, GL17 OHH	**Database for the Amstrad CPC 464**	Data-Base	**£12.99**
	Music Composer	Music Composer	**£9.99**
Camsoft, Cambrian Software Works, Unit 2, Maenofferen, Blaenau Ffestiniog, Gwynedd, 0766/831878	**Software**		

BOOKS Title	Author	Publisher	Price
Amstrad Computing with the CPC464	**Ian Sinclair**	Granada	**£6.95**
Sensational Games for the Amstrad CPC464	**Jim Gregory**	Granada	**£5.95**
40 Educational Games for the Amstrad CPC464	**Vince Apps**	Granada	**£5.95**
The CPC464 Advanced Users Guide	**Mark Harrison**	Sigma	**TBA**

Apologies for the others tht have not been entered this time: remember to get the programs to us in good time, please include the price, and your telephone number.

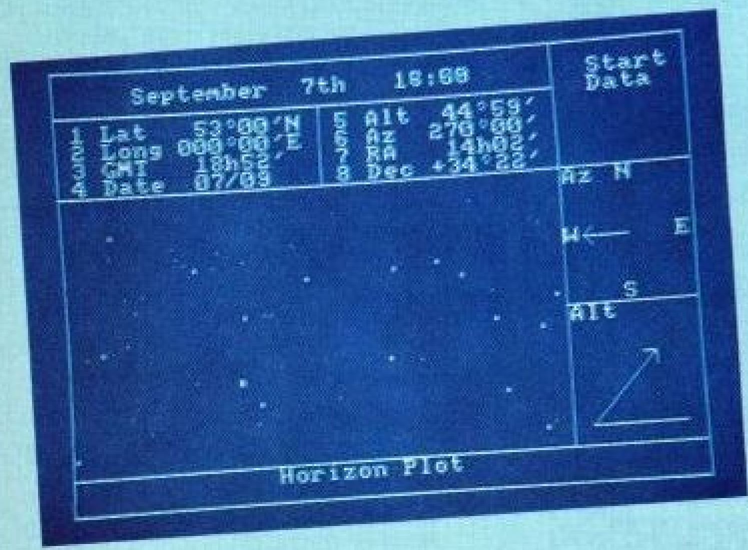
Remember, we can only list your program in the directory section if you send to:

CPC464 User Directory
Brentwood House, 169 Kings Road Brentwood Essex

This facility is quite independent of any other software dealings that may transpire at the above address - so please don't assume your software will be listed if a library copy is not specifically addressed to the Directory! We know that there's lot's more software out there, but it hasn't been sent to the directory collator. Shame on you Tim Moore, and others.

The best home micro now has the best training and applications software.

AMSOFT's Brainpower range from Triptych Publishing is simply superb. From star gazing with ***Star Watcher*** to understanding the principles of modern business planning with ***Entrepreneur***, each item in the Brainpower series provides an absorbing teaching program and an indispensable applications program to show you how to put what you've learned into practice.





Star Watcher will show you how to identify constellations and specific stars. It will explain the principles of astronomical navigation, and provide you with self assessment tests along the way.

Turn over the cassette, and you will be able to use the applications program to display the sky exactly as you would see it at any given time, from any given location on the earth's surface. The distinction between daylight, twilight and night is clearly visible. Amazing.

And if that's not enough for all you budding Patrick Moores, **Star Watcher** features a unique real time update mode, so you can set the program to display the sky and update the changes every minute. Even more amazing.

AMSTRAD CPC464

ADVERTISERS' INDEX